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ORGAN OF THE AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE AND THE JOHNS HOPKINS INSTITUTE OF THE HISTORY OF MEDICINE

Editor—HENRY E. SIGERIST

VOLUME XIII MARCH, 1943 NUMBER 3

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Editor—HENRY E. SIGERIST

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ON THE INFLUENCE OF THE STARS ON HUMAN BIRTH

G. KASTEN TALLMADGE

The influence of the stars is not to be denied.

—Scott.

Even in the middle of the twentieth century the idea is widespread among all classes of society that nativity at the eighth month is ill-omened and foreboding of misfortune, that it presages evil for the infant surely, possibly also for its mother, and probably for both. It is thought that not only would birth at the seventh month rather than the eighth be more auspicious for the mother, but it would be so even for the infant, premature by two months rather than by one only.

The antiquity of this strange notion appears to ascend, together with the antiquity of astrology and numerology, upon which it seems to depend, to the very dawn of human civilisation. It is found, already ancient, in the Hippocratic writings, and notably in the *Treatise on Seven*. It is found, again and again, repeated in countless works which treat of embryology, of obstetrics, of astrology, of numerology, of black magic, not to mention other subjects, during more than two thousand years. Where does this curious notion have its origin?

Empiricism is the antecessor of positivism, and many of the prin-

ciples of the sciences and the arts have their sources in the superstitions, the traditions, the folk-lore of a tribe or a people. The dreams of the thaumaturge of old are the realities of the present; the quest of the alchemist of yesterday—vain hope—is completed today in the actual transmutation of the elements. Then is there no empirical ground to explain the widespread conviction that nativity at the eighth month is less auspicious than that at the ninth, and even than that at the seventh?

Than that at the ninth assuredly, and to the degree that a fœtus at term has a greater probability of survival than has one which is premature by some thirty days. Than that at the seventh?—does not this problem hinge upon the same factor of maturity alone, other things being equal? And statistics prove that this is true, and that for the infant at least nativity at the eighth month is more favourable than at the seventh.

And if the conviction that birth at the eighth month is ominous has not its source in an empirical ground, where is that source to be discovered? How did this error arise? And whence its persistency? If this conviction cannot be referred to experience, which, indeed, contradicts it, it must be referred to some other ground. Could not this ground be the pseudo-science of numerology?

It is not probable that the mathematical philosophy of Pythagoras and the Pythagoreans had had no predecessor. If the master himself was a philosopher, a man of science, an astronomer, was he not at the same time an ascetic, a mystic, an astrologer? The occult powers of the planetary 7 were recognised by the Babylonians before him. And although it was common to ascribe to the philosophers and the mathematicians of ancient Greece fabulous sojourns in the temples of Egypt, and although Professor Burnet has shown that the Egyptians could give no mathematic, no science, no philosophy to the illustrious generations from Thales to Aristotle—anyone can make Egyptian hexagons, but only the Greeks could construct a regular pentagon—yet there is no real reason to doubt that Pythagoras had studied under the high-priests of Egypt and had imbibed of their hieratic. Did he not found a society of ascetics? Did he not teach the doctrine of metempsychosis? Did he not interdict the eating of meat?

Now the Pythagorean influence was transmitted to the modern world through two great channels. It is known that although Alcmæon of Crotona was not strictly a Pythagorean, yet he had intimate relations with the sect. Moreover, he exerted a notable influence upon the Hippocratic school of physicians. There is an immediate relation between his physiological theory of *ἰσονομία* and the Pythagorean theory of attunement. Again, Philolaos, usually considered next after Pythagoras himself, and the author of the first treatise ever written upon the Pythagorean system, himself contributed much to the humoral theory, which, like the doctrine of the *vis medicatrix naturæ*, is one of the very foundation-stones of Coan medicine. In the *Treatise on Seven*, a work of the Hippocratic school even if not written by the master himself, the Pythagorean influence is frankly manifest. And thus the Pythagorean numerology found its way into the thought of the modern world through the channel of the great formative tradition of Hippocratic medicine.

And the other great channel, whose importance is at least as great, is that of Platonism. No one can doubt that Plato was one of the greatest mathematicians of the world, and it is well known that Theætetus, Eudoxus, and other members of the Academy were able to achieve astonishing geometrical constructions and astonishing mathematical demonstrations. Indeed, during his voluntary exile at Megara it is certain that Plato became aware of the necessity of reconstructing mathematic. The Megarians considered themselves the true continuators of the great Parmenides and the Eleatic monism. And among the philosophers, cosmologists, and mathematicians whom Zeno of Elea, through his incomparable dialectic, was enabled to confute, was the all but divine Pythagoras himself. Plato became aware of the Zenonian confutations of Pythagorean mathematic no doubt through Euclid of Megara and Terpsion, his hosts. Before criticism like this, the Pythagorean doctrines of the indivisible point and the genesis of the numbers from the unit became untenable.

Now Plato himself was Pythagorean, and, moreover, looked upon himself rather than the Megarians as the true continuator of Parmenides. And thus one of the most urgent of the tasks which he set before himself and the members of the Academy, upon his return to

Athens, was precisely the reconstruction of mathematic upon a ground where Zeno's criticism could not attain it. And one of the greatest accomplishments of Plato and the mathematicians of the Academy was precisely this brilliant reconstruction of mathematic, effected principally through the theory of the generation of the line by rhesis, thus nullifying Zeno's paradox of the insecability of the line, and the theory that the numbers are not addible and the postulation of zero as the first of the integers, thus nullifying Zeno's paradox of irrational numbers. It may be mentioned in passing that those who look upon Aristotle as a great scientist, at the expense of Plato's scientific reputation, will find Aristotle quite impatient of grasping these difficult scientific achievements of his master.

One finds no Pythagorean numerology in Plato, unless possibly in the *Timæus*, which properly is Pythagorean and not Platonic. But in Platonism, and especially in the later Neoplatonic and Neopythagorean schools (if schools they can be called), the numerologic tendency developed more and more at the expense of the Platonic science. And this is the Platonism, embodying the Pythagorean numerology and the *Timæus*, which almost exclusively, and to a degree which is more easily underestimated than exaggerated, gave direction not only to scientific thought but also to the mystical penchant of man during those long centuries when the works of Aristotle were lost to the western world.

Timæus of Locri, himself a Pythagorean, according to Plato said that the Pythagoreans considered the number seven to be the perfect number. That the physicians of Cos referred their "crises" and "climacterics" and "critical days" to this number is well attested by the *Treatise on Seven* and other writings of the Hippocratic corpus.[1] Varro stated that the number seven was the terminus or node about which all Nature revolved. He discussed this concept with prolixity, bringing to bear in support of it many allusions to such natural phenomena as the formation of the embryo, the phases of human life, and others. Cicero called the number seven "the node of almost all things."[2] Terpander of Lesbos was illustrious in all antiquity for his invention of the seven stringed lyre.[3] Plutarch and

[1] Cf. also Aulus Gellius, *Noctes Atticæ*, XV, 7.
[2] Cicero: *De Re Publica*, VI, 12. *V.* also Seneca, Epistle XII.
[3] Cf. Suidas, *Lexicon*, and Strabo, *Geography* (on *Methymnia*).

Philo specifically noted the septenary nature of the musical scale, and Philo, in the *Creation of the World*, gave the septennial stages of human life according to Solon.[4] The seven spheres between heaven and earth were the basis of all astronomy before the time of Aristarchus of Samos, and of much of it since.[5] And according to Antonio de Fuentelapeña, a Spanish capuchin of the seventeenth century, Cælius Rhodiginus considered the *terque quaterque beati* of the Roman poets " vna perpetua felicidad, y duracion." [6]

Fuentelapeña writes, further,

> The number, seven, is the enigma of the sages, sacred as well as profane. For since they all recognise that it conceals mysteries, they venerate it as an occult Deity. Pierius mentions this in Book XXXVII; Saint Jerome, in his commentary upon the book of Amos, calls seven the Sacred Number; Macrobius (book I, chapter 6) terms it the Perfect Number; and the arithmeticians designate it the Virgin Number because it alone among the digits before ten neither is engendered nor engenders.[7]

It seems, then, that the conviction in the occidental world that nativity at the seventh month is more fortunate than nativity at the eighth, is an ancient tradition which ascends to Pythagoras by way of two channels, the one philosophico-scientific (Hippocratic) and the other philosophico-mystic (Neoplatonic), neither of which is positivistic. And the ultimate origin of this belief, which now has been traced back to Pythagoras, may be sought even beyond the Samian in the numerology of the ancient Egyptians and Sumerians.

Bonaciolus of Ferrara wrote,

> But it is certain that most seven-months' infants both live and grow. And it is said that in Egypt even eight-months' infants usually are viable, and this is true in certain other regions where women seem to be more fertile

[4] Solon, frag. 27 (Edmonds). *Cf.* also Macrobius, *Ad Somnium Scipionis*, I, 6, and Aristotle, *Politica*, 1335[b], 32 *ss.*

[5] *Cf., e. g.*, Cicero, *De Re Publica*, VI, 17.

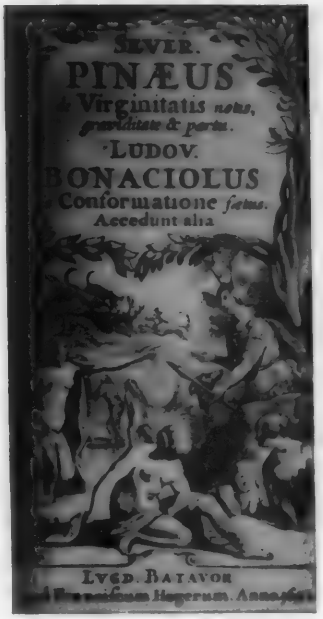
[6] Antonio de Fuentelapeña, *El Ente Dilucidado*, Sección II, Duda 14, Dificultad 2, (334).

[7] *Op. cit.*, 324: El numero 7. es el enigma de los ingenios, assi sagrados, como profanos, pues reconociendo vnos, y otros misterios reconditos en èl, como à Deidad oculta le tributaron veneraciones. Assi lo nota Pierio *en el lib.* 37. Sã Geronimo sobre Amòs le llamò numero Santo, Macrouio *lib.* 1. *cap.* 6. le llamò numero de perfecciõ, y los Arismeticos le llaman numero Virgen, porque solo èl, entre los numeros digitos, ò en los inferiores al diez, ni es engendrado, ni engendra.

and of stronger constitutions. But in Italy such infants virtually never survive. Moreover, not only do eight-months' infants die, but also the mothers of these dead infants are subjected to no little peril. Some authorities very stupidly attribute this to the immoderate coldness and dryness of Saturn, even though those people who are called saturnine (after the planet) not only live most actively but also are most healthy. But I myself, on the contrary, agree with Galen in thinking that childbirth is not going to be less natural just because seven months already have been completed by approximately seven changes of the moon, for surely the development of the fœtus has been finished by that time. And therefore, when the material formative principle of the fœtus is deficient in quantity, it is necessary to bring forth the child at the seventh month, in order to try to bring forth a fœtus not lacking in its vital principle. But in a case where the material and the vital principles fortunately are in equilibrium, nature waits until the ninth month. On the other hand, when there is an excess of the material principle whilst the vital principle is shrunken and weak, nature finds it worth while to risk a seven-months' infant, for at the eighth month it would be born so skinny and sickly that it would die at once. The infant usually is driven cruelly to its cruel death no matter which parent was responsible for its deficiency in vital or material principle. And thus it happens that birth at the eighth month is not considered propitious, even if the infant is born viable and even though many men already have proclaimed that such infants are viable in Italy as well as in Egypt.[8]

The attempt to explain a supposed fact by means of astrology, itself of course a pseudo-science at least as old as numerology, and

[8] Lud. Bonaciolus Ferrariensis: *De Fœtus Formatione,* cap. VIII: Sed & plerosq; septimo mense natos, & vixisse & adolevisse compertum est. Quin etiam & mense octavo (translatitium) in Ægypto vitæ compotes gigni traditum est: atque aliis quibusdam solis, ubi mulieres fœcundiores validioresq; extiterint. At Italiæ locis haud quaquã superstites sunt. Itaque non solum mense octavo nati haud vivunt: sed etiam ipsis intermortuis, periculum non mediocre, quæ pariunt, subeunt. Nec desunt qui hujusce rei causam in immodicum Saturni algorem siccoremque inanissimo commento referant: quando tamen qui à Saturno Saturnii nuncupantur, & optime degant plerique, & maxime valeant. Nos Hercules cum Gal. lunæ circuitibus pene septenis, septenis mensibus peractis, nihil quicquam inde puerperio defuturũ existimamus, quippe quod sarcte per id tempus cuncta assecutum sit: ob id in lucem prodire totis viribus periclitari, quæ ubi materia deficiente supersint, septeno mense, fœtetur necesse est. At ubi materia & vires æqua forte sese contexuerint, opperietur, justoque partu enitetur. Ex adverso ubi materia redundans, viribus vietis ac flaccidis compareat, septeno ortum mense pertentat, octavo tenue ac morbidum, ita ut statim pereat extrudatur, operæprecium est. Quo parente incommodo vexata plerunque ad immanem mortem, immaniter compellitur. Unde fit ut si quis vitæ compos evadat, non octavo mense natus æstimetur, quamvis jam quidem & in Italia tales partus vitales fuisse plerique prodiderint.



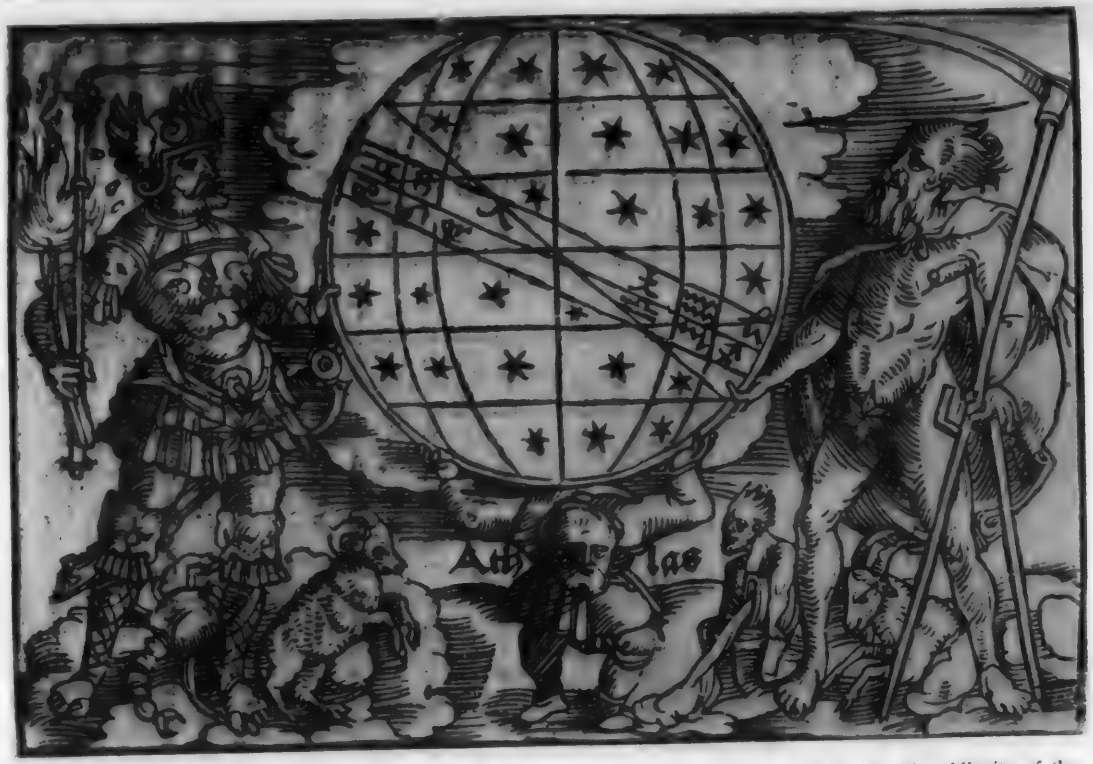
The title-frontispiece of the volume (12mo) containing the *De Conformatione Fœtus* of Ludovicus Bonaciolus. The engraving represents the story of Artemis and Actæon. The first edition of this work had been published in 1640. Copy from the author's personal library.

probably older, was given in greater detail by Fuentelapeña, who does not seem to have known of the work of Bonaciolus. It may be well to recall here, however, that there always have been some men who refused to be deceived by the claims of the astrologers. Thales of Miletus must have ascribed eclipses to natural causes since he foretold an eclipse of the sun. Xenophanes of Colophon taught that there were innumerable worlds, if one may believe Diogenes Laërtius on this point. Anaxagoras followed the lead of Thales, Anaximander (who discovered the obliquity of the ecliptic), and Anaximenes (who taught that the heavenly bodies are only condensations of the material principle of the world and that their flaming state was caused only by their extreme velocity) in attributing eclipses to the action of natural causes and maintaining that the sun was no god, but a blazing mass of metal larger than the Peloponnesus—a doctrine which caused him to be considered no less an atheist than Diagoras of Melos. Hippocrates examined at length the claims of the astrologers and discarded them.[9] Plato assigned the circular motions of the heavenly bodies to natural causes, in this respect again proving himself a scientist far superior to Aristotle, who had to postulate the quintessence in order to account for this motion. And Aristarchus of Samos, except for the obstinacy of human ignorance, probably would have put an end at last to this kind of superstition.

The avowed purpose of Epicurus and Lucretius was to assign natural causes to phenomena, and at any rate numerology and astrology were repugnant to the practical mind of the Roman. Cicero, himself an augur, held that all divination "should be torn up by the roots." Augustus banished from Rome the physician Anaxilaus of Larissa on the charge (which, by the way, probably was unjust) of practising magic.[10] Aulus Gellius collected many arguments against the astrologers.[11] Such attacks were continued by the Church Fathers, and especially by SS. Augustine and Ambrose.

In modern times Isidore of Seville seems to have been the first to distinguish between astronomy and astrology, and the attacks against the astrologers were continued, as is shown in the writings

[9] Hippocrates, *On the Sacred Disease*, II *ss*, etc.
[10] Eusebius, *Chron. ad Olymp.*, CLXXXVIII.
[11] Aulus Gellius, *Noctes Atticæ*, XIV, 1.



Representation of the zodiac and its signs, with the firmament of the fixed stars, and showing the obliquity of the ecliptic, from the *Medicæ Prædictionis Methodus, hoc est. Recta Brevisque Ratio coram Ægris Præteria, Præsentia, Futuraque Prædicendi*, etc., etc., of Nicolaus Taurellus Montbelgard. 4to, Frankfurt, 1581. Copy from the Horace Manchester Brown Library of the Milwaukee Academy of Medicine.

of Oresme, Bernard of Verdun, and by others whose names are doubtful.[12] But Isidore's distinction, and these attacks, and the confirmation of Aristarchus' doctrine of the heliocentric nature of the solar system by Copernicus, together did not suffice to put an end to astrology. So, in 1643, J. A. Comenius wrote "Astronomus siderum meatus seu motus considerat; Astrologus eorumdem efficaciam, influxum, et effectum."

Reverting now to the astrology of Fuentelapeña, whose book was published in 1676, one encounters a detailed explanation for the supposed misfortunes of being born at the eighth month:

> The Planets, or predominant Stars, upon which depends strictly the whole of sublunary things, are seven in number: the Moon, Mercury, Venus, the Sun, Mars, Jupiter, and Saturn, and according to the Astrologers they dominate everything in such manner that they influence us from the very instant of conception to the last moment of life, by minutes, by hours, by days, by months, and by years, alternatively and each one in turn, the Moon in the first hour, then Mars in the second, and so the rest until the seventh hour, which Saturn influences. And from Saturn the dominion passes over again to the Moon, and then to the rest, in a perpetual circle. And as the Planet Saturn is dry and melancholic whilst the Moon is moist and cold, it occurs that in the passage from the domination of the one to the domination of the other there is an alteration in the dominated body because it passes from one extreme to the other. And this is why the crisis, or node, or turning-point of things lies in the seventh number, and the cause of the danger of this number to health and to life is the fact that the humours of the Moon and of Saturn are so different, and the individual, be he either ill or healthy, has to pass from the domination of the one to the domination of the other. All this has been said by Dædaleus, the Commentator of Plato, quoted by Caldera: *Humani corporis formationi Lucina ac omnes Planetarum influxus in circulum, usque ad Saturnum, cuius maleficam virtutem singulis septem annis suo exitio humana salus experitur, & idcò per singulos septem annos veluti per scalas periculo ascendimus.* Whence we conclude that our crises, our mutations, and our risks and perils, are in the seventh number, not because this number in itself has the power to influence, but because, since the Sun and the Moon have their crises and changes in this number, it follows that we sublunary beings must undergo ours also in it, and it follows especially that we must suffer an alteration in the seventh number, for, since the seven planets dominate us successively, when the influence of Saturn is replaced by that of the Moon—Planets of such different and contrary qualities—our

[12] *Cf.* Lynn Thorndike: *A Hitherto Unnoticed Criticism of Astrology. Isis,* XXXI, 68.

bodies cannot help but suffer from the novelty of passing from one extreme to the other.[13]

Mercurialis has asked, in a very concise way, the two questions which are involved in this problem: " Dices, cur fætus viuunt septimo mense, octauo uiuere non possunt? Præterea, quæ est ratio, cur in Aegypto uiuant octimestres partus? "[14] The astrological answer given to the first question by Fuentelapeña (and by many others before him) had been refuted long ago by Pico della Mirandola—and rightly so, according to Mercurialis:

The Astrologers, in explaining this, say that where conception is concerned each month is governed by its own Planet. The eighth month is governed by Saturn, which is a cold and dry Planet. But since coldness and dryness are inimical to life, they say that infants born in the eighth month are not viable. But Pico della Mirandola (*Against the Astrologers*, III) rightly has refuted this opinion, for it is wholly unreasonable to suppose that the months are subject to the various Planets. For since the months are extremely variable,

[13] Fuentelapeña, *op. cit.*, 343: Los Planetas, Astros tambien predominantes, y de quien pende precisamente todo lo sublunar: son siete en numero, la Luna, Mercurio, Venus, Sol, Marte, Iupiter, Saturno, y como quieren los Astrologos, dominan de tal modo, que desde el primer instante de la concepcion hasta el vltimo de la vida, por minutos, por horas, por dias, por meses, y por años, alternatiuamente, y por sus turnos, influyen en nosotros: la Luna en la primera hora, luego Marte en la segunda, y assi las demàs, hasta la hora septima, que influye Saturno, del qual passa otra vez à la Luna el dominio, y luego à los demàs en perpetuo circulo. Y como el Planeta Saturno es adusto, y melancolico, y la Luna es humeda, y fria, de aqui viene el que a el passar el dominio del vno al otro, aya mutacion en el cuerpo predominado, por passar de vn estremo à otro estremo: y de aqui viene el ser la crisi, el nudo, ò gozne de las cosas, en el numero septimo, y de aqui el peligrar en este numero la salud, y la vida, por ser clima tan diferente la Luna de Saturno, y auer de passar el enfermo, ò el sano del predominio deste al dominio de aquella. Todo lo dixo Dedaleo Comentador de Platon apud Calderam: *Humani corporis formationi Lucina ac omnes Planetarum influxus in circulum, usque ad Saturnum, cuius maleficam virtutem singulis septem annis suo exitio humana salus experitur, & ideò per singulos septem annos veluti per scalas periculo ascendimus.* De adonde concluimos, que nuestros crisis, que nuestras mutaciones, y que nuestros riesgos, y peligros son en el numero septimo, no porque este numero tenga virtud de influir, sino porque haziendo el Sol, y la Luna sus crisis, y mudanças en este numero, es preciso, que en èl las ayamos de experimentar tambien los sublunares: y principalmente es preciso, que en el numero septimo ayamos de padecer alteracion, pues predominando los siete Planetas en nosotros successiuamente, al dexarnos Saturno, y tomarnos la Luna, Planetas de tan diferentes, y contrarias qualidades, no puede menos de padecer el cuerpo la nouedad de passar de vn estremo à otro.

[14] Hieronymus Mercurialis, *De Morbis Muliebribus*, II, 1.

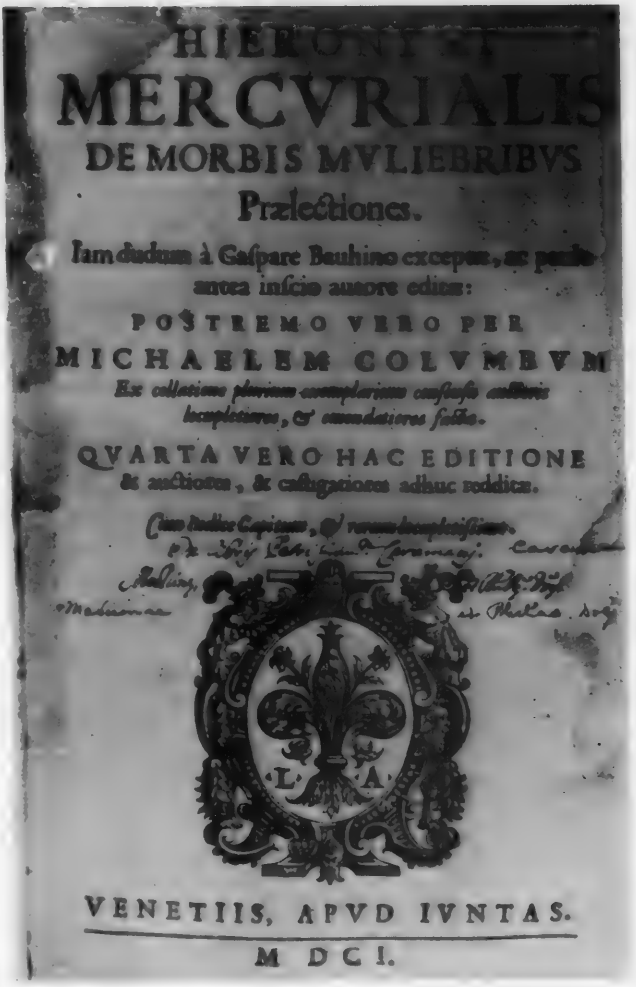
and one woman may be pregnant in the seventh month and another in the eighth or the fourth, it is irrational to state that therefore this Planet has dominion over this woman in this month, and that Planet over another.[15]

Mercurialis also gives the Hippocratic answer:

Polybus, or Hippocrates (On Seventh-Month Birth), offered another and a better reason, namely, that the fœtus *in utero* always is oppressed during the eighth month and its strength is impaired, whence it follows that if it be subjected to a great change of environment by being born during the period when it is oppressed, it will almost surely succumb, for since it is naturally weak, when it is subjected to so radical a change of environment, it almost necessarily finds it impossible to endure such a disturbance. Avicenna (*Treatise on Abortion*, III, 21) and Albertus Magnus (*Second Treatise on Animals*, X, the last chapter) explain how the fœtus is oppressed in the uterus during the eighth month. In explanation of the Hippocratic theory, they both say that the fœtus *in utero* is oppressed during the eighth month because as it develops and grows during the seventh month it needs large quantities of nutriment and of air, and since these are lacking it seeks to escape from the uterus and it begins to move. Now if it succeeds in being born at this time, it is viable because its development is complete. But if it does not succeed in being born, but is retained within the uterus, then, because of the efforts which it had to expend in trying to be born during the seventh month, it is weak and languid and exhausted during the eighth, so that it must remain in the uterus until the ninth month to strengthen and recreate itself. Now when it is born at the ninth month, having regained its strength and thrown off its langour and weakness, it is born strong and healthy, and therefore it is viable.[16]

[15] Mercurialis, *l. c.*: Astrologi, ut redderent huius rei rationem, dixerunt quemlibet mensem conceptionis gubernari à proprio quodam Planeta, octauum gubernari à Saturno, qui quoniam frigidus, & siccus Planeta est frigiditas uerò & siccitas inimica est uitæ, hinc dicũt, partus natos sub hoc mense non esse uitales. Sed Picus Mirandula tert. contra Astrologos, refutauit hanc opinionem, & rectè, quia imaginarium hoc est, quod menses deputati sint singulo Planetæ, quia cum maximè & infinito modo uarient menses, ita ut reperiatur una grauida in septimo, altera in octauo & quarto: est ueluti confusio dicere, quod huiusmodi mulieri in hoc mense hic Planeta, & illi alter præsideat.

[16] Mercurialis, *l. c.*: Polybus siue Hipp. lib. de Septimestri partu, attulit aliam rationem & meliorem, scilicet, quòd partus in utero, semper octauo mense laborat, nõ admodum ualet, unde, si eo tempore quo laborat, exeat in lucem, atq; experiatur hanc mutationem, proculdubio succumbit, & moritur, quia, cum sit naturaliter infirmus, eo tempore ut permutetur ab aere & loco valdè diuerso ab eo, in quo erat, proculdubio nõ potest sustinere huiusmodi perturbationes. Quomodo verò laboret in vtero octauo mese, explicat Auic. 21 tertij, Tractatu de abortu, & Albertus Magnus 10. de animal. tract. 2. c. vlt. qui omnes, quasi explicantes Hipp. sententiam, dixerunt, idcirco laborare fœtum in vtero octauo mense, quia septimo mense, cum


HIERONYMI
MERCVRIALIS
DE MORBIS MVLIEBRIBVS
Prælectiones.
Iam dudum à Gaspare Bauhino excepta, ac paulò antea incerto auctore edita:
POSTREMO VERO PER
MICHAELEM COLVMBVM
Ex collatione plurium exemplarium confusa emendatiora, locupletiora, & emendatiora facta.
QVARTA VERO HAC EDITIONE
& auctiora, & castigationes adhuc reddita.
VENETIIS, APVD IVNTAS.
M DCI.

Title page of the *De Morbis Muliebribus* of Hieronymus Mercurialis. Fourth edition, 4to, Junta, 1601. Copy from the Horace Manchester Brown Library of the Milwaukee Academy of Medicine.

But Fuentelapeña clings to the astrological explanation, and proceeds to show in detail how the infant's life is imperilled by being born at the eighth month—borrowing largely, however, from the Hippocratic writings, from Avicenna, and from St. Albertus Magnus:

The cause of this effect and difference is that the fœtus cannot endure two afflictions which follow so closely upon each other, namely, the one which occurred in the uterus during the seventh month, and the one which occurs in parturition during the eighth month. For it is weakened by the first affliction, and it loses its life through the second, since, beyond the difficulty of being born—the second trouble which afflicts it—it cannot endure the sudden change of its environment.

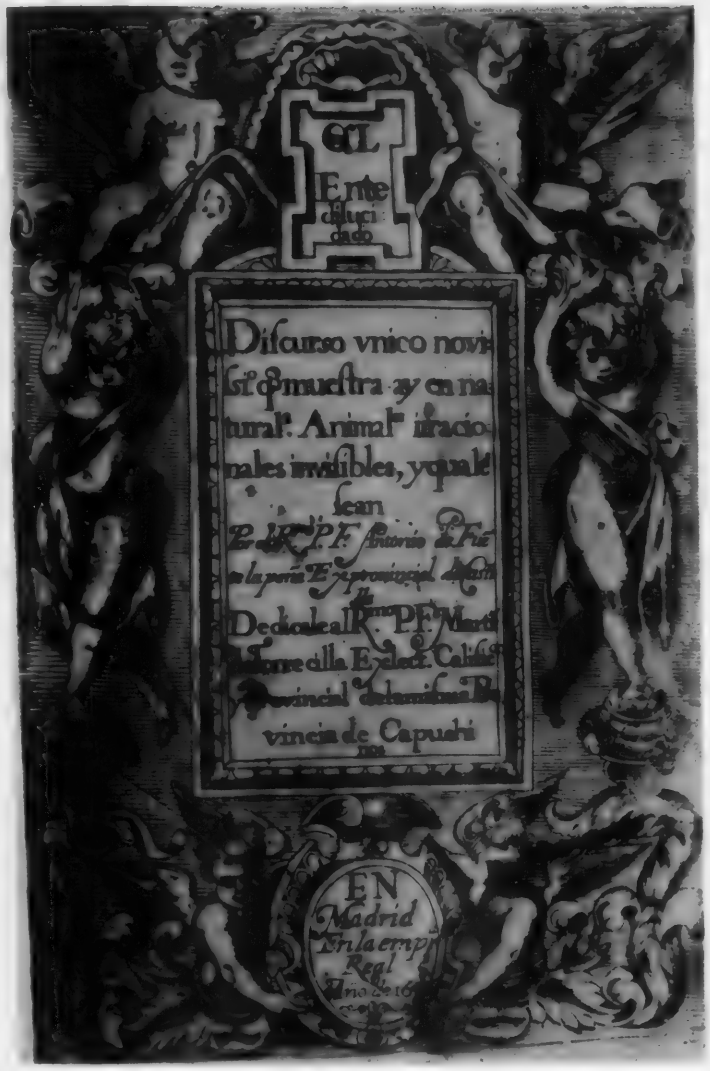
Now from the occurrences of the seventh month, at which time the fœtus already is large and fully developed and needs more nourishment and more air to breathe, we can understand why (this being a critical month) it undergoes a change, and begins to move in an effort to liberate itself and to be born. And if it be sufficiently strong to succeed, it is born healthy and viable, but if it is unable to succeed in being born, it is debilitated and exhausted from its struggles and efforts, and then it needs a period of rest in order to regain its forces. And so if it rest until the ninth month it does regain them, and it is born with strength sufficient to enable it to withstand the affliction of birth and the change of its environment.[17]

fœtus fit grandior & cõsumatior, opus habet multo nutrimento, & multo aere, quæ omnia, cum sibi desint, querit exitum, & incipit moueri. Quod si exeat eo tempore, superstes viuit, quia iam cõsumatus est, si non exeat, sed retineatur in vtero, ob labores, quos sustinet septimo mense, dum nitebatur exire, in octauo debilis est, languidus, infirmus, ita vt necessarium sit ipsum adhuc in utero permanere vsq; in nonum mensem, ut recreetur & reficiatur, quoniã in nono mense, cum postmodum sit refectus, & languorem oẽm & infirmitatem deposuerit, dum egreditur, egreditur valens, & incolumis, & propterea vitalis est.

The two works, *De Septimestri Partu* and *De Octimestri Partu*, were written by Polybus and not by Hippocrates, according to Clement of Alexandria.

[17] Fuentelapeña, *op. cit.*, 345-6: La causa de dicho efecto, y diferencia, es no poder sufrir la criatura dos aflicciones successiuamente continuadas, conuiene à saber, la que ha passado en el vientre el septimo mes, y la que sucede en el parto el octauo: porque con la primera se debilita, y por la segunda pierde la vida, no pudiendo sufrir sobre la dificultad de el nacer, la segunda vez que successiuamente lo intenta, la mundança subita de el ayre ambiente.

Para cuya inteligencia, es de saber, que segun hemos dicho en el septimo mes, como ya la criatura es grande, y perfecta y tiene necessidad de mas alimẽto, y de mas ayre para respirar, siendo mes critico, haze mutacion, y se empieça à mouer procurando desatarse, y salir à luz: de donde se sigue, que teniendo fuerças para conseguirlo sale perfecta, y de vida: pero no pudiendo queda con el mouimiento, y



The title-frontispiece (copper engraving) of Antonio de Fuentelapeña's book, *El Ente Dilucidado* (first edition). This work has been called "Livre extravagant, dont Salva a pu dire qu'il lui paraissait impossible qu'un père capucin en soit l'auteur tant on y rencontre d'absurdités, de choses monstrueuses, vulgaires et même indécentes. Le plus curieux est que l'auteur obtint les approbations de ses supérieurs et le permis d'imprimer. Plus tard les exemplaires de son livre furent recherchés avec soin, pour être détruits." Copy from the author's personal library.

There remains the second question put by Mercurialis, "Quæ est ratio, cur in Aegypto uiuant octimestres partus?" The viability of a fœtus of eight months in Egypt was a tradition ancient even in Aristotle's day, and was accepted, as has been shown, by Bonaciolus, as it was also by Mercurialis and Fuentelapeña. Avicenna held that this exceptional phenomenon was the rule in Spain also. Fuentelapeña explained this fact by borrowing—as Bonaciolus, Mercurialis, and the rest also had done—Aristotle's explanation:

> Aristotle answers that the reason for this is the fecundity of the Egyptian women and the great ease with which they bear children, whence it follows that since birth does not cost the fœtus so much toil, therefore it does not receive from it so great injury.[18]

And he adds to this another:

> But it seems to me that beside this reason there is another which is no less effective, namely, the fact that the climate of Egypt is so warm. And since, from this fact, the air there has almost the same mild warmth as has the belly where the fœtus was, it follows that when the fœtus leaves the belly it notices so little change that even though it be limp and weak the change does not offend it nor cause a lethal injury.[19]

However, Mercurialis had quoted this explanation also, although perhaps a Spanish capuchin could not be expected to have known this:

> But another reason, too, is given, namely, that the climate of Egypt is warmer, and a warmer climate is more like the interior of the uterus, where the fœtus was residing. And therefore when even a puny fœtus is born at the eighth month, in Egypt, it is not injured so much by coming into a climate to which

trabajo debil, y desalentada, y assi tiene necessidad de quietud para repararse de fuerças: por lo qual si se està queda al mes noueno las cobra, y sale con fortaleza bastante para poder sufrir el trabajo con que nace, y la mudança del ayre que la rodea.

[18] Fuentelapeña, *op. cit.*, 347-8: Responde Aristoteles, que la causa de esso es la fecundidad de las Egipcias, y la facilidad grande con que paren: de donde se sigue, que como no les cuesta tãto trabajo, assi no reciben alli tanta ofensa las criaturas.

[19] Fuentelapeña, *op. cit.*, *l. c.*: Pero à mi me parece, que sobre la dicha, hay otra cõcausa no menos eficaz que ella; y es el ser tan calida la region de Egypto: porque como el ayre alli, por dicha razon tenga casi la templança que el vientre, donde la criatura estaua: de aì es, que salida del vientre sea tan poca la alteracion que recibe, que aunque estè flaca, y debil, no la ofenda, ni cause daño mortifero.

it is accustomed and which is not very different from that of the place where it lived formerly.[30]

The scientist does not like to acknowledge how readily he has capitulated, on a thousand occasions, to superstition and error. Roger Bacon enumerated what he considered to be the four great sources of error in human knowledge, and the fourth, which he considered also to be the real cause of all the others, was the concealment of ignorance under the cloak of false wisdom. Incidentally, Roger Bacon himself thought that the heavenly bodies influenced human actions. It must not be forgotten that convenient words like heliotropism, affinity, gravitation, and a thousand others, do not constitute knowledge; they merely describe phenomena without explaining them. Isaac Newton even complained to his friend, Pemberton, that men everywhere accepted his theory of gravitation as if it were an explanation, whereas in reality it was only a description.

How many current scientific concepts may in the end prove to be only stupidity decked out as wisdom, capitulations of the human mind to its superstition, to the persistency of its prejudices, to the obstinacy of its ignorance, is a question which must give pause to the sober and critical thinker.

[30] Mercurialis, *l. c.*: Sed addatur & altera ratio, quia aer Aegypti calidus est, aer verò calidus, magis est similis loco vteri, in quo permanebat fœtus. Et propterea, licet fœtus octauo mense exeat imbecillis eo in loco, non tamen ita offenditur, in cœlo sibi assueto, quia non multum est dissimile à loco pristino.

MEDICAL ETHICS IN ANCIENT CHINA

T'AO LEE

The real foundation for medical ethics as understood in the west is laid in the grand Hippocratic Oath in fifth century B. C. The Egyptian papyri of the second millennium B. C. also mentioned medical ethics. Medical ethics in China, however, were not established until the seventh century.[1] Sun Ssu-miao (孫思邈 581-673 A. D.), the father of medicine in China, first discussed the duties of a physician to his patients and to the public in his book, "The Thousand Golden Remedies." In content this is similar in certain respects to the Hippocratic Oath. The essential points may be translated as follows:

"Medicine is an art which is difficult to master. If one does not receive a divine guidance from God, he will not be able to understand the mysterious points. A foolish fellow, after reading medical formularies for three years, will believe that all diseases can be cured. But, after practicing for another three years, he will realize that most formulae are not effective. A physician should, therefore, be a scholar, mastering all the medical literature and working carefully and tirelessly.

"A great doctor, when treating a patient, should make himself quiet and determined. He should not have covetous desire. He should have bowels of mercy on the sick and pledge himself to relieve suffering among all classes. Aristocrat or commoner, poor or rich, aged or young, beautiful or ugly, enemy or friend, native or foreigner, and educated or uneducated, all are to be treated equally. He should look upon the misery of the patient as if it were his own and be anxious to relieve the distress, disregarding his own inconveniences, such as night-call, bad weather, hunger, tiredness, etc. Even foul cases, such as ulcer, abscess, diarrhoea, etc., should be treated without the slightest antipathy. One who follows this principle is a great doctor, otherwise, he is a great thief.

[1] Sun Ssu-miao, The Thousand Golden Remedies, Vol. 1, pp. 1-3
(孫思邈, 千金方, 著於唐初, 明萬曆三十一年吳氏重刊本)

"A physician should be respectable and not talkative. It is a great mistake to boast of himself and slander other physicians.

" Lao Tze, the father of Taoism, said, 'Open acts of kindness will be rewarded by man while secret acts of evil will be punished by God.' Retribution is very definite. A physician should not utilize his profession as a means for lusting. What he does to relieve distress will be duly rewarded by Providence.

" He should not prescribe dear and rare drugs just because the patient is rich or of high rank, nor is it honest and just to do so for boasting."

Another important work on medical ethics is " The Medical Talks " (醫說) written by Chang Kao (張杲) in 1189.[2] In a special chapter he collected twelve stories of retribution in order to warn physicians against professional faults. Gratuitous service was especially commended. Lusting after women and riches was considered to be immoral. The inducing of artificial abortion was severely denounced. The following story is cited as an example of gratuitous service.

" Mr. Hsu Shu-wei (許叔微) in his youth prayed to the Gods that he might attain literary rank. One night he dreamed of a God who told him to perform some secret deeds of virtue in order to attain his ambition. Hsu was so poor that he could not help others financially. The only thing he could do was to become a doctor and then help the sick. He decided therefore to study medicine and soon mastered the art. He gave free treatment to all patients and responded readily to any request for his assistance without considering whether the patient was of high or low rank. When he sat in the next examination, he passed with honors."

A story is told concerning artificial abortion as follows:

"A woman called Pai Mu-tan (白牡丹), lived by selling drugs for artificial abortion. One day she suffered suddenly from headache and her head became swollen. Physicians were unable to cure her. After many days an ulcer appeared with an offensive odor. Her crying at night could be heard by all the neighbors. One day she asked her son to burn all the prescriptions for abortion, and warned

[2] Chang Kao, Medical Talks, Vol. 10, pp. 31-39, 1189
(張杲, 醫說, 宋淳熙十六年著, 民國二十二年國學圖書館影印本)

him not to engage in such a vocation as hers. Her son asked her why she would not hand down the prescriptions to him. She answered, 'I dreamed of hundreds of infants striking at my head every night. My illness is entirely due to my selling drugs for abortion.'. After saying this, she died."

Ancient Chinese laid great emphasis on the virtue of chastity. The following story from the same book is a good example.

"During the period of Hsuan-ho (宣和 1119-1125) a scholar was sick for many years. His wife requested the great doctor, Ho-cheng (何澄), to come to her boudoir and said to him, 'My husband has been sick for a long time; everything we possess has been sold to pay the expenses of medical care. We have no more money. If you will kindly cure my husband, I will place my body at your disposal.' The doctor rejected her offer sternly and said to her: 'Don't insult me. I will cure your husband. If your suggestion should be spread abroad by any chance, my career would be spoiled and I would be condemned by man and by the spirits.' Soon her husband was cured. One night the physician dreamed of a man taking him to a temple where a judge said to him, 'You have the virtue of the medical profession. You did not lust after woman in time of danger. God grant you 50,000 strings of cash and an official rank.' A few months later a prince of the Imperial family was sick. The court medical official could not cure him. An Imperial decree was then issued to summon the physicians in the country. Ho-cheng presented himself and cured the prince. The court thereupon granted him 3,000 strings of cash and an official rank."

In the Ming Dynasty the question of medical ethics was discussed by many physicians. Hsu Chun-fu (徐春甫)[3] in 1556 compiled a section on this subject under a special title "The Medical Way" (醫道). At the same time Kung Hsin (龔信)[4] wrote a maxim for reputable physicians. The maxim, which was instructive and concise,

[3] Hsu Chun-fu, General Medicine of the Past and Present, Vol. 3, pp. 11-14, 1556 (徐春甫, 古今醫統, 明嘉靖三十五年著, 明嘉靖間刊本)

[4] Ch'en Meng-lei and others, A Compilation of Ancient and Modern Books: Section of Medicine, Vol. 518, p. 6, 1723-34. (陳夢雷等, 古今圖書集成, 醫部彙考第六十册藝文, 清雍正初年著光緒二十三年影縮本)

has been used as a motto in the baccalaureate service of the Peiping Union Medical College since 1939. It reads:

"The good physician of the present day cherishes kindness and righteousness. He reads widely and is highly skilled in the arts of his profession. He has in his mind adequate methods of treatment, which he adapts to different conditions. He cares not for vainglory, but is intent upon relieving suffering among all classes. He revives the dying and restores them to health: his beneficence is equal to that of Providence. Such a good physician will be remembered through endless generations."

Kung Ting-hsien (龔廷賢),[5] son of Kung Hsin, set ten requirements for physicians in 1588, in content very similar to the maxim given above. About thirty years later Chen Shih-kung (陳實功)[6] in his book, "An Orthodox Manual of Surgery" (外科正宗), stated five commandments and ten requirements for physicians. These included the duties of a physician to his patients, such as professional secrecy, responsibility, deportment and compensation. Attention was also given to the obligations of a physician to other physicians. The importance of advancement of medical knowledge was pointed out and rules for social intercourse were also suggested. This is really the most comprehensive statement on medical ethics in China. It reads as follows:

Five Commandments

1. Physicians should be ever ready to respond to any calls of patients, high or low, rich or poor. They should treat them equally and care not for financial reward. Thus their profession will become prosperous naturally day by day and conscience will remain intact.

2. Physicians may visit a lady, widow or nun only in the presence of an attendant but not alone. The secret diseases of female patients

[5] Kung Ting-hsien, Ten thousand Diseases are Cured, Vol. 8, p. 59, 1587 (龔廷賢, 萬病回春, 明萬曆十五年著, 明萬曆十三年金陵周成印重刊本)

[6] Chen Shih-kung, An Orthodox Manual of Surgery, Vol. 4, pp. 125-128, 1617 (陳實功, 外科正宗, 明萬曆四十五年著, 清康熙三十八年榮觀堂刊本)

should be examined with a right attitude, and should not be revealed to anybody, not even to the physician's own wife.

3. Physicians should not ask patients to send pearl, amber or other valuable substances to their home for preparing medicament. If necessary, patients should be instructed how to mix the prescriptions themselves in order to avoid suspicion. It is also not proper to admire things which patients possess.

4. Physicians should not leave the office for excursion and drinking. Patients should be examined punctually and personally. Prescriptions should be made according to the medical formulary, otherwise a dispute may arise.

5. Prostitutes should be treated just like patients from a good family and gratuitous services should be given to the poor ones. Mocking should not be indulged for this brings loss of dignity. After examination physicians should leave the house immediately. If the case improves, drugs may be sent but physicians should not visit them again for lewd reward.

Ten Requirements

1. A physician or surgeon must first know the principles of the learned. He must study all the ancient standard medical books ceaselessly day and night, and understand them thoroughly so that the principles enlighten his eyes and are impressed on his heart. Then he will not make any mistake in the clinic.

2. Drugs must be carefully selected and prepared according to the refining processes of Lei Kung. Remedies should be prepared according to the pharmaceutical formulae but may be altered to suit the patient's condition. Decoctions and powders should be freshly made. Pills and distilled medicine should be prepared in advance. The older the plaster is the more effective it will be. Tampons become more effective on standing. Don't spare valuable drugs; their use is eventually advantageous.

3. A physician should not be arrogant and insult other physicians in the same district. He should be modest and careful towards his colleagues; respect his seniors, help his juniors, learn from his superiors and yield to the arrogant. Thus there will be no slander and hatred. Harmony will be esteemed by all.

4. The managing of a family is just like the curing of a disease. If the constitution of a man is not well cared for and becomes over-exhausted, diseases will attack him. Mild ones will weaken his physique, while serious ones may result in death. Similarly, if the foundation of a family is not firmly established and extravagance be indulged in, reserves will gradually drain away and poverty will come.

5. Man receives his fate from Heaven. He should not be ungrateful to the Heavenly decree. Professional gains should be approved by the conscience and conform to the Heavenly will. If the gain is made according to the Heavenly will, natural affinity takes place. If not, offspring will be condemned. Is it not better to make light of professional gain in order to avoid the evil retribution?

6. Gifts, except in the case of weddings, funerals and for the consolation of the sick, should be simple. One dish of fish and one of vegetable will suffice for a meal. This is not only to reduce expenses but also to save provisions. The virtue of a man lies not in grasping but rather in economy.

7. Medicine should be given free to the poor. Extra financial help should be extended to the destitute patients, if possible. Without food, medicine alone can not relieve the distress of a patient.

8. Savings should be invested in real estate but not in curios and unnecessary luxuries. The physician should also not join the drinking club and the gambling house which would hinder his practice. Hatred and slander can thus be avoided.

9. Office and dispensary should be fully equipped with necessary apparatus. The physician should improve his knowledge by studying medical books, old and new, and reading current publications. This really is the fundamental duty of a physician.

10. A physician should be ready to respond to the call of government officials with respect and sincerity. He should inform them the cause of the disease and prescribe accordingly. After healing he should not seek for a complimentary tablet * or plead excuse for another's difficulty. A person who respects the law should not associate with officials.

* A wooden board inscribed with complimentary words, hung in the physician's office for propaganda.

In 1695, Chang-Lu (張璐)[7] wrote Chang-shih-iitung (張氏醫通), a book on general medicine, with ten commandments for physicians in the first chapter. The physician's self control and his duties to his patients and to the public are emphasized. The essential features are to abstain from the following: 1, acquiring evil habits; 2, over self-confidence; 3, strong prejudice; 4, imitation or lack of initiative; 5, making careless diagnosis; 6, practicing magic healing; 7, treating the nobility and commoners similarly **; 8, neglecting poor patients; 9, extorting high compensation from critical cases; 10, criticizing or slandering other physicians.

In the early nineteenth century Huai Yuan (懷遠)[8] also stated six maxims for physicians in his book. They are very much the same as those above cited, and will not be quoted here.

Comment

Medical ethics is a body of rules compounded from idealism and practicality which physicians accept as their moral standard. Its purpose is to promote the prime object of the medical profession, service to humanity, and also to assist the regulation of medical practice by the government. The standard of medical ethics varies according to races, habits, customs and times. An action considered moral by one people may not be so considered by others. On the other hand, conduct once regarded as a great fault may not be so in our times. Medical ethics has no permanent single standard. From the Chinese medical literature cited above we may recognize several differences in the ideas of oriental and western peoples on medical ethics. Several points should be noted:

1. Treatment of female patients. Mencius[9] said, "Men and women, in giving and receiving, must not touch each other." The influence of this proverb on the medical profession is very great. As

** It was believed that the physique of the nobility was delicate while that of a commoner was tough. They should, therefore, be treated differently.

[7] Chang Lu, Chang's General Medicine, Vol. 1, pp. 1-4, 1695
(張璐, 醫通, 清康熙三十四年著, 清康熙間寶輪樓刊本)

[8] Huai Yuan, Medical Drill, Vol. 4, pp. 43-47, 1808
(懷遠, 醫徹, 清嘉慶十三年刊本)

[9] Mencius, The Four Books, Vol. 7, p. 56
(孟子, 離婁章, 世界書局本)

the female patient could not expose any part of her body to the male physician, a model, the so-called "medicine lady," was used for illustration during the medical examination. For the same reason palpation was not considered proper for women. The examination of the female sex organs was a great offence to the ancient Chinese custom. It was also not proper for a physician to lay his fingers on a woman's wrists to examine her pulse. This last inconvenience was ingeniously avoided by physicians in the Imperial family of the Ming Dynasty.[10] A long string was tied to the patient's wrists while another person held the other end. The doctor then laid his fingers on the middle of the string to examine the pulse, a method based on the principle of the transmission of waves through the string. But since the transmission was too weak to be effective, this fantastic method was not generally adopted.

2. Gratuitous service. Most of the prominent physicians in Chinese medical history were either retired government officials or scholars who had failed in the Imperial examination. They disliked to think of the practice of medicine as their profession. They all endeavoured to encourage gratuitous services and looked on the practice of medicine as a philanthropic undertaking or a benevolent act. As a result a good tradition has come down among physicians. All, with few exceptions, are pledged to serve the community by the alleviation of suffering without caring much for financial return.

3. Retribution. The idea of retribution played an important part in medical ethics. Most Chinese believed that disease and distress were retribution for past sins while health and happiness were rewards for past virtues. This is probably attributable to Buddhist influence in China. The practice of medicine was considered a benevolent act and observance of professional ethics would be rewarded with a rich harvest of blessing. For this reason ancient Chinese physicians dared not to do anything unethical or unprofessional.

4. Complimentary tablets. Chinese patients used to present wooden boards with complimentary inscriptions to doctors who had cured them, as an expression of appreciation. This was also intended

[10] Lee, T., History of Medicine, p. 99, 1940
(李濤，醫學史綱)

to announce the skill of the doctor to others who might suffer from the same disease. This good custom can be traced back to ancient times. Later, however, it was abused as a means of propaganda. Physicians began to ask patients to present tablets. Some even made tablets themselves and claimed that they were presented by their patients.[11] The wrong use of this good custom made Chen Shih-kung consider it vainglory and he warned physicians against it in his ten requirements in the early seventeenth century.

5. Relationship between social problems and medical problems. Many patients cannot be cured of their illness unless their financial pressure or other social problems are also relieved. Therefore, a social service has been established in many modern hospitals. Chen Shih-kung, in the early seventeenth century, noticed the close connection between medicine and social problems and made the utmost effort to provide relief work for the poor.

6. Difference between the physique of the nobility and commoners. Chang Lu believed that the physique of a noble was delicate while that of a commoner was tough and they should be treated differently. He also classified physicians into two groups, one specialized in curing those of high rank, and the other, the common people. Although this idea, very similar to the four temperaments in Greek medicine,[12] overestimates the difference between individual constitutions, it is not altogether without scientific basis.

7. Secret prescriptions. The dispensing of secret prescriptions was never considered to be unethical in China. Some even deemed it an honor for a physician to know a secret formula. Even today secret remedies still prevail. The public generally believes that such prescriptions will become ineffective if popularly used. This attitude is probably due to the lack of formal medical organization before the introduction of western medicine.

Conclusion

The important writings on medical ethics in ancient China have been briefly mentioned and commented upon. One of the good

[11] Li, Chia-jui, Classified Literatures of Peiping Topography, Vol. 1, p. 160, 1927 (李家瑞, 北平風俗類徵, 職業門)

[12] Singer, C., A Short History of Medicine, p. 97, 1928

features of Chinese medical ethics is the encouragement of gratuitous service to the poor. This custom is well established in China and should continue to be followed by modern physicians. Fortunately the Chinese Medical Code promulgated by the Chinese Medical Association in 1932 already has given a great emphasis to this point.[18]

The chief weakness in Chinese medical ethics is the lack of opposition to patents and secret remedies. This is probably due to there being no medical guilds in China. Another shortcoming is that no reference is made to the teaching of medicine such as that found in the second sentence of the Hippocratic Oath, where the pledge is given to teach without fee or stipulation all who are bound by a stipulation and Oath according to the law of medicine. This places all medical knowledge at the disposal of all physicians. The Chinese adhere rather to the Hippocratic injunction to restrict the teaching of medicine to the sons of physicians and to disciples bound by a stipulation and Oath.

[18] The Chinese Medical Directory (Chinese text), 1934.

A FORGOTTEN MONOGRAPH ON עפלים TAINTED WITH A SUSPICION OF PLAGIARISM

OTTO NEUSTÄTTER

In the course of my study of the Philistine plague I came across a monograph on the עפלים (apholim), i. e. the pathologic-anatomical symptom of the disease. As it seems to be the only monograph and is not mentioned in any of the numerous commentaries on the subject, a review of it may be of interest, especially as it is a clear proof that at the end of the 17th and the beginning of the 18th century the concept of the disease as bubonic plague did not enter into discussion. As I have pointed out in an article in this *Bulletin* [1] this was characteristic of the time before Scheuchzer. But the monograph shows also a usage at which our idea of literary propriety takes umbrage.

To turn to this latter circumstance first: In the *Thesaurus Theologico-Philologicus, sive Syllogus Dissertationum elegantiorum ad selectiora et illustratiora Veteris et Novi Testamenti loca, a theologis Protestantibus in Germania separatim diversis temporibus conscriptarum, secundum ordinem utriusque Testamenti librorum digesta* (Amstelodami MDCCI) I found M. Joh. Nic. Hardtschmidt, Dissertatio de עפולים ad I Samuel VI, 5. Later, while visiting the Library of the Jewish Theological Seminary of America in New York, I discovered the same dissertation in its original form of 1685. Its title contains the same queer choice of chapter and verse (the word apholim occurs first in V: 6, 9, 12; and VI: 4), and the same unusual spelling (עפולים with a "ו") which is not warranted thus, neither in the interpunctuated nor the uninterpunctuated text (cf. the Critical Edition of the Hebrew Text of the Books of Samuel by Karl Budde, Leipzig 1894). In the course of the dissertation it is often written without "ו" (though one may spell it with a "ו" without changing the meaning). The wording of the text is the same too. But the author is—Joh. Jacobus Stolterfoht! His name on

[1] Where Did the Identification of the Philistine Plague (I Samuel, 5 and 6) as Bubonic Plague Originate? *Bulletin of the History of Medicine*, 1942, Vol. XI, pp. 36-47.

מה חקה

עפולים

ex

I. Sam. VI, 5.

EXERCITATIONE PHILOLOGICA,

PRÆSIDE

Præstantissimo, Clarissimo, nec non Doctissimo

Viro DN.

M. JOHANNE NICOLAO Hardtschmidt / Argent.

Amplissimæ Facultatis Philosophicæ

Assessore Gravissimo,

Dn. Fautore ac Commensali suo omni honoris cultu atatem prosequendo,

Publico συμφιλολογῆσαι submittit Examini

Resp.

JOH. JACOBUS STOLTERFOHT,

Slesvic. Holsat.

In Auditorio Majori, d. IX. Septembr. An. 1685.

horis matutinis.

WITTEBERGÆ,

Imprimebat CHRISTIANUS SCHRÖDTERUS, Acad. Typ.

By courtesy of the Library of the Jewish Theological Seminary of America, New York.

the title page (see illustration), it is true, is typed smaller than that of the praeses Hardtschmidt.

One might suspect that naming Hardtschmidt was nothing but a mistake because Stolterfoht's name was less pretentiously printed. But this is not acceptable. For as is evident from the title page Stolterfoht had to defend the dissertation and his affixed corollaries (theses) in a solemn gathering at the University of Wittenberg and was according to the laudations in the appendix to the original, the author of the dissertation, while Hardtschmidt was the *praeses* at the meeting in which, sitting on the upper cathedra, he would see that his pupil came off well in the discussion. But Hardtschmidt does not appear as the author. A reprint of the dissertation under his name we therefore regard as plagiarism.

This conclusion would be vouchsafed if our ideals of the authorship of a *doctorandus* were strictly applicable to those times. Sylvio Köhler,[2] it is true, defended the standpoint that, as nowadays, as a rule the respondent wrote the dissertation. But from the investigations of Horn[3] as well as by their discussion by Kaufmann,[4] the expert of the history of the German universities, this view is not valid. The dissertation had the principal aim to give the respondent the occasion to show his thorough familiarity with the theme in question. The text might be chosen from any existing publication, also as the professors had the duty to hold a certain number of disputations in the course of a year, from an essay of the professor who functioned as praeses. There arose thus a field of common interest for the *praeses* and the respondent. Both wanted the performance of the disputation: the professor to fulfill his duty of publishing a work of his, the respondent cleverly to defend the theme and the theses in order to assure his career. The professor mostly undertook the task of writing the text, the respondent on the other side its defense and—the costs of the printing and of the celebration

[2] Köhler, Carl Sylvio: Die Auctorschaft und Katalogisierung der akademischen Dissertationen. *Neuer Anzeiger f. Bibliographie u. Bibliothekswissenschaft*, 1886, p. 225 ff.

[3] Horn, E. Die Disputationen u. Promotionen an den Deutschen Universitäten. Beiheft XI zum *Centralblatt f. Bibliothekswesen*. 1893.

[4] Kaufmann, G. Zur Geschichte der academischen Grade und Disputationen. *Centralblatt f. Bibliothekswesen*. Mai, 1894.

connected with these public disputations and including fees for decorations, robes, musicians, banquets, etc., not a minor burden. Now it is not a very easy task to say who is the real author of a dissertation even today. As a rule the professor under whose tutorship it appears is regarded as the originator of the idea and the responsible supervisor of the entire execution. This concept led to consequences under which I had difficulties with my own dissertation on the "Lippensaum beim Menschen." In the course of the—unsuccessful—undertaking to find measurements and other characteristics for an anthropological classification of the lip-types I had made observations which led me to work out independently my dissertation in the Zoological Institute of the University of Munich. As a medical candidate I could not graduate from this Institute, and my treatise had to undergo a very close scrutiny from my venerated professor of Microscopic Anatomy, v. Kuppfer, before he agreed to accept it as praeses. Even then I had difficulty to get it printed in a scientific journal because I could not name a responsible Institute where I had worked out the essay, and who could know that I was really the author. Afterwards my results found acceptance in Raubers Anatomy: but the candidate was not regarded as a fullfledged author; the idea prevailing that a dissertation was essentially the achievement of the "praeses."

Under these circumstances we shall not be astonished that the Catalog Rules, Author and Title Entries, of the American Library Association (Chicago 1908, p. 1), as Dr. Temkin kindly advised me, prescribed for dissertations published before 1800 the entering under the *praeses* as *praeses*, and an added entry under the respondent's name only when he is known to be the author. (In a footnote we read: the authorship of the respondent is in many cases difficult to establish. His designation on the title page as "auctor" is not to be accepted implicitly as proof of authorship in the strict sense of the word.) The further method here recommended: to name the respondent beside the praeses at least in brackets, was already in use in libraries of the 16th-18th century (cf. Horn, l. c., p. 66). Yet it was not regarded as a breach of etiquette that the praeses in a reprint assumed the authorship even in cases where he had praised the respondent as the real author (Horn, p. 55)! So we could not

incriminate Hardschmidt of a plagiarism or a breach of academic etiquette even if he had known of the reprint beforehand, which is improbable.

What about the publisher of the reprint? He undoubtedly copied from the original dissertation where the name of Stolterfoht was given and the appendix revealed his authorship. So knowingly the name of the respondent must have been omitted. Today this would be a decided breach of the copyright. But then no *law* forbade such procedure. The privilege of copyright was not given *per se* as now. If it was granted by a sovereign, it was limited to his state, but not valid in the many other states which existed then in Germany. The Thesaurus was not even printed there, but in Holland, and apparently was a purely commercial undertaking. The beautifully printed, thick folio volume appeared without the name of an editor. There is only a remark about the craftsmen who were occupied in finishing the work: Henricus et Vidna Theod. Boom, Johannes et Aegidius Janssonii a Waesberge, Gerhardius Borstius, Johannes Walters; et Ultrajecti Gulielmus van den Waters et Guilielmus Brodelet. Why bring the name of an unknown man? Hardtschmidt at the time (1701) had acquired the degree of Dr. Theologiae and had been made professor ordinarius of logic and metaphysic; later he became Canonicus at the chapter of St. Thomas at Strassburg. He wrote a number of disputations on theological-philological themes. Zedler's *Grosses vollstaendiges Universallexicon* and Joescher's *Allgemeines Gelehrtenlexicon*[5] (both probably going back to a biography by Goetze in *Meletemata Annabergensia* of 1706, Hardtschmidt's death date) mention more than thirty; among them in 1686 (not 1685) De hemorrhoidibus ad I Samuel 6: V. *His* name therefore was quite alluring for the publisher. It would of course have been more honest if the publisher at least had named Stolterfoht besides Hardtschmidt, but he has not committed what we could call a plagiarism either, at least not an unlawful one.

To make up for what is a certain injustice, we will take Stolterfoht as author, although he is not named as such on the title page. For five of his laudators speak of him as author, among them the arch-

[5] I am indebted to the Librarian of the Union Theological Seminary, New York, Miss Lucy W. Marley, for her references to these two sources.

deacon of the Marianum Temple at Wittenberg, from whom we also hear that Stolterfoht was following the example of his prominent Lübeck grandfather, who in his writings successfully fought outstanding foes.

The fact that the word עפלים was made the subject of a dissertation which was found worthy of being reprinted, will in itself awaken the feeling that it was a matter of special interest. Indeed for 2000 and more years it has been a puzzle what this word and its homonym techorim (טחרים) stand for. Techorim is used in the later part of chap. VI, and in reading the two chapters (in the so-called Q're) has entirely replaced apholim. This is only mentioned in one other part of the Bible (Deut. 28: 27); and techorim nowhere at all in old Hebrew. The embarrassment already became apparent at the occasion of the first translation of the Bible, the so-called Septuaginta, through which a trustworthy interpretation of the Bible was to be given to the Greek-speaking Jews who were no longer sufficiently versed to read Hebrew. According to the legend 72 of the most learned men of Israel, 12 of each tribe, were called to Alexandria by Ptolemaeus Philadelphus for that work and finished it in 72 days (ca. 280 B.C.). But even this early translation did not know what to make of these terms, as is evident from their rendering them by seats or buttocks (hedrai). This translation is important as it expresses throughout the same distinct location of the pathological change, but it is totally unsatisfactory as the text requires a definition with what, not where the Philistines were smitten by the pestilence that befell them after they had abducted the Ark of the Covenant into their land. The Vulgate, this most important translation, unique during the Middle Ages as it was the one accepted in the 6th century by—and still valid for—the Catholic Church, was at least clearer as it spoke not just of *nates* but of *secretior pars natium* as the seat of the disease, and used in chap. V: 9 an expression which had a pathologic-anatomical meaning: *computrescebant prominentes extales eorum*. From this one could at least gather that it was an exulcerating protruding affection of the intestines in the anal region that was sent upon the Philistines. But in chap. VI the words are again given as mere locations. Luther's translation brought more confusion still; he translated quite problematically: they were smitten with

secret disease in secret places. The English Protestant Authorised Version (1611) accepted everywhere emerods which had never been given up by the Jewish translators. (Emerods is an old English modification of hemorrhoides).

In the introduction to his dissertation Stolterfoht stresses that there existed at this time *tot sensus, quo capita* regarding the meaning of the word apholim. The root of the word meant something high, a clivus like the one called ophel in Jerusalem behind the temple or a high fortified place (according to Buxtorf). But M. A. Reuchlin gave it even the denotation of *elevatio cordis malitia, impietas, superbia*! To quote all the current explanations would lead to no end; therefore he halts his pen.

There were two essentially differing explanations. Some supposed that the term apholim means the seat of the affection, the others the affection itself which is called hemorrhoides or mariscae, a word which the rabbis have replaced by techorim when the passages are read. They regard this word as less obscene. Their motive was: *quae in Biblia scripta sunt per vituperium legentur ad laudem.* In accordance with Leusdenius, Pfeiffer, Fullerus, Munsterus, Grotius, Buxtorf, Casparius Sanctius, Drusius he cannot find the latter word less objectionable than the first.

Stolterfoht himself adheres to a double meaning of the term. In chap. V he thinks it means the disease, in chap. VI the locality of the disease. Here he agrees with Luther who in chap. VI translated the word by arses: " they shall make images in gold of their arses as guilt offerings " to propitiate the wrath of Jehovah who was believed to have sent the pestilence as a punishment for the abduction of his ark. It is impossible, he argues, to sculpture pains or a disease; it would also be impossible to recognize hemorrhoides in an image; only of the part of the body affected could models have possibly been made. Josephus, it is true, spoke of statuettes of the whole body as models. On them the diseased parts could possibly have been made distinguishable, but one could only agree with this idea if there was anything in the text pointing to it. They were not smitten on the hands, the feet, the legs, the back, the chest, but on the shameful places, and only a modelling of those could bear evidence of the shame that was laden on them!

In the explanation of the character of the disease Stolterfoht is rather equivocal. On the one hand he thinks that those have done best who explained the word simply by *nates* or *ani*. Those who render *inferiores partes ventris* or *posteriores* are also very close to the real meaning, if they use such vague words for the sake of decency. Luther was straightforward and translated "aerse" where the images are discussed, while in chap. V he simply spoke of secret disease in secret places. On the other hand, Stolterfoht also agrees with the translation hemorrhoids which is used by the Jews, and "also by his Excellency Dn. D. Pfeiffer (in his dub. vexat. ad locum I. Sam. V: 6)," an exegesis which I had not found mentioned elsewhere and could not procure for checking. In another paragraph of his discussion he even says apholim was "as all interpreters agree with me," *hemorrhoidum morbus, qui infestavit posteriora.* Only what kind of hemorrhoids came into consideration was still a matter of controversy! Some accepted the idea that it was *fici qui in locis secretis interiora ventris depascebantur*, some that dysentery was the proper denotation; some thought of *lues venerea*, some of *novus et multiplex morbus*. The Hebrew scholars are quoted in Hebrew and then translations are given. He thoroughly disagrees with Yarchi (Rashi) who thought of a *plaga foraminis intestini recti propter mures ingredientes et egredientes*, calling this opinion absurd.[6] How could one assume something that is not written in Samuel at all? If anything of the kind could be found therein, all right; but if not, one had to concede that the boundary line of truth has been transgressed. Not all rabbis, therefore agreed with Rashi; some did not mention his opinion, others regarded it even as absurd.

Stolterfoht renders Kimchi's opinion: they had *plaga mariscarum in loco retentionis et percussi sunt ipsi "betechorim,"* according to the Chaldean text. After the word "retentio" the author puts in brackets: "sive pudendorum," a remark which is of interest with regard to the connection of this expression with the anal region.

[6] This opprobrious rating has been reiterated in quite recent times, even in a chiding form. Of course Rashi's opinion is entirely untenable, but as I shall show elsewhere our judgment must be decidedly modified and moderated. Especially the adherents of an interdependence of mice and the pestilence ought to respect the common ground on which they stand with this idea and to consider its historical background.

Later, this concept of "pudenda" was explained as meaning the inguinal region.

Gersonides had pointed to the fact that the Philistines were smitten in a place where the affection could not have arisen by an accident; and the affection itself he regarded as "techorim," i. e., *mariscae*, a disease which *admodum cruciat, et egreditur exinde sanguis copiosus.*

It would lead too far to quote all the opinions mentioned. Only one diagnosis is noteworthy because I had not found it elsewhere: Osiander (ad Deut. 28: 27; p. 250) had called apholim *morbum pudendum, quem meaici ficum vocant*, or perhaps it was *scabies maligna, intus et foras exsiccans, late autem obsidens, rodens et deturpans et prurigine; item alia scabiei species, quae corpus instar Cheres facit exsuccum et languidum, a quibus non poteris sanari.*

Now the pericope in Deuteronomy has been referred to by other authors as well, which is quite understandable, as this is the only other place where apholims are mentioned in the Old Testament. The conclusion has been drawn from the juxtaposition there with the boil of Egypt and the itch and the scab, that apholim cannot possibly mean the seat of the disease, but must be the denomination of a disease; but scarcely ever has the word been interpreted in Samuel to mean a skin disease, especially one that by its nature would be a chronic one. Stolterfoht does not identify himself with this diagnosis, but he does not directly disprove it either. He remarks, however, that the rabbis unanimously refuted the idea that apholim meant the seat of the disease; they regarded the term as the designation of a disease

[7] The Latin text seems to be somewhat corrupt. I could not obtain Osiander's publication. The definition given might be suitable for Deuteronomy; for Samuel it is totally inadequate. It may be a circumscription of syphilis. What the word Cheres means, I could not find out and neither could several scholars I interviewed about it. I am indebted to Edward H. Sehrt (Washington) for a neat tentative explanation. He thinks the term is taken from the Greek ξηρός (dry). Now the capital of ξ: Ξ in Latin is rendered by "X" (cf. xēron); the scribe took this letter for χ = ch. He remarks however that this is but an attempt. What Cheres really means here is not decided. The concept of syphilis is ascribed to the affection by Friedreich (Zur Bibel, Nürnberg 1848) because as synonymous with hemorrhoids, used by Stolterfoht and many before him, mariscae was current! The Latin ficus has also been interpreted as meaning syphilitic condyloma, because since the 16th Century it was applied in this sense! (Preuss, Bibl. Talm. Med., p. 212).

somehow connected with the bowels and *infirmitas ani*. He quotes especially R. Mordechai Nathan (whose name I did not encounter with other commentators) as saying (in his סֵפֶר יְאִיר נָתִיב) that one had to accept this idea: apholim meant clivus, "techor" *infirmitas ani*.[8]

Here the question whether apholim and techorim are synonyms is approached. The author's opinion on this question is not quite clear. While in the text he remarks that both words are tantamount, as regards their sense, in his corollary he maintains that they are not synonyms. The roots of the two terms are radically different, but they are synonymous in their meaning. Not only is techorim used everywhere in the Q're instead of apholim; in Aramaeic it is replacing apholim altogether, even in the written text, and the kinship to the Arab 'afal' makes aphorim fall in the category of affections of the hinder parts too. As no discussion of the corollary exists, one cannot say how the author meant or defended it. The argument that techorim in the Massorah is only *written* where there is talk of the *images* does not hold good, for in this case apholim is used as well. Luther has used aerse for both words in chap. VI and avoided a definition of apholim in chap. V. Stolterfoht follows him in distinguishing between the translation of apholim in chap. V and VI. On the other hand, in his 4th corollary Stolterfoht calls תחתניות a possible substitute for apholim with the restriction: *non tamen idem significat, etsi unum per alterum recte explicari possit.* No substantiation is given for this thesis either. But thachtoniyoth in the Talmud means hemorrhoids; Rashi renders it with figs which was the usual expression of the time for piles. In itself it is just as equivocal as apholim and techorim, meaning "inferiors"[9] and thereby

[8] As an otherwise not named exception of the rabbinical disease conception Stolterfoht quotes R. Salomon ben Malech who in his ספר מכלל יופי (sepher michall yophi, a Hebrew dictionary) adheres to a merely localizing explanation of apholim and techorim: *posteriores partes corporis, quod sunt in loco tecto.*

J. Buxtorf (filius) in his—and his father's—Concordantiae Bibliorum Hebraicae et Chaldaeicae has used among others also Rabbi Mordecai Nathan's (really called Isaac Nathan) "Concordance" of 1447 which he translated and which is based again on—though distinguished from—Arloto of Prato's Latin work, but he gives apholim and techorim as synonyms and translates them differently by haemorrhoides or mariscae in connection with different pericopes, yet without conceivable reason.

[9] According to Preuss (Bibl. Talmud. Medizin, Berlin 1911, p. 212) who trans-

coming into near kinship with the Greek *sedes*, the Latin *posteriores* and Ginzberg's מושב to which he attributes the meaning of sedilium as well as of a podex. This is, however, not used in Samuel; but techorim is, and is synonymous with apholim. There could still be several interesting details taken from this dissertation. But what has been presented here already contains a number of items which can only be appreciated by one who is particularly acquainted with the extensive discussions which this part of Samuel has provoked. There are, however, a few points which may also interest the more detached reader.

To what conclusions did the author himself come concerning the meaning of apholim and of the disease that terrified the Philistines?

It is interesting that he apparently had a feeling that the affection itself was not the essence of this terror. It has already been mentioned that notwithstanding his idea of a difference of the meaning of the term in the two chapters, he adhered to the most favored concept of hemorrhoids for it. He does not believe that a continuous and severe flux of blood is meant by apholim. The helplessness in the face of the problems of a medical nature are clearly expressed in his doubting sentence: *Si apholim fuerunt fluxus sanguinis, a nimia ejus copia vel acrimonia et nates intumuisse putamur* (*si morbi hujus vim exprimere debeat apholim* . . .). We will not deride his concepts if we remember the bizarre ideas medical men produced in those times. On the contrary, he shows a very sensible restriction in his opinion, saying he agreed with the Jesuit Casparis Sanctius' opinion: *quis ille morbus sit, minus est exploratum, neque mihi id adeo explorare libet. Et nos*, he continues, *id Medicis relinquimus, et sufficit nobis, fuisse genus quoddam morbi, quod infestavit posteriora.*

He thinks, however, that beside the apholim there must have been a "caedes," i. e. a deadly disease. And in addition to these two scourges a third plague, the destruction of the crops by mice, must have been imposed upon the vicious enemies of the Israelites. Both these questions have been the subject of extensive controversies and doubts, the influence of which on the solution of the problem of the

lates it as hemorrhoids, a meaning given to the term also in modern Hebrew. R. S. A. Neuhausen attributes to it the meaning of stomach ache. In any case it hints at the intestinal seat of the affection.

plague of the Philistines I have made the subject of an extensive historical and critical investigation.

The whole tenor of the publication is another of its remarkable points. It is characteristic of a time in which the physicians did not offer any suggestions which would have given an impetus to a more adequate solution of the problems. The investigation was entirely in the hands of philological considerations which alone could not possibly lead to satisfactory results (though some, at least in words, had come very near to a solution). Medical theories fostered incompatible concepts for distinguishing most diverse hemorrhoidal diseases, even declaring that hemorrhoids could be a severe epidemic infectious disease, or declaring that if they were hidden they were especially dangerous, nay incurable. Even considering the possibility that with this queer expression a carcinoma of the rectum might have been alluded to, nobody could have ascribed to this disease the character of a rapidly spreading malady, killing young and old alike in a short time. It was still a sign of judgment if the idea was fostered that there must have been a mortal disease beside the apholim, an idea to which one pericope (V: 12) seemed to hint when it said that those who did not die were smitten with hemorrhoids. The adherence to this idea together with the limitation in pronouncing a diagnosis is evidence of a critical feeling in this dissertation.

It was only the terrible devastation the plague brought especially to southern Europe in the second decade of the 18th century that gave birth to Scheuchzer's assumption (1725) that the plague of the Philistines was real oriental plague and the "apholim" were plague boils. One hundred sixty years later this concept found official recognition in the Revised Version of the English Bible (1885). With this the inconsistency of the usual translation of "emerods" came to an end, merited it is true only insofar as the diagnosis as plague was in better accordance with the awe-inspiring spread of the malady among the Philistines. The problem of this phenomenon finally seemed to be solved. With flying banners the medical commentators changed over to this persuasive concept. And when the discovery was made of the rôle that rodents play in the spread of this epidemic, every doubt seemed effaced, as even mice are mentioned in the account in Samuel.

Our dissertation would seem to be nothing but the end of an over-aged run of thought. In reality it is a document of the time-honored conviction which finds its fundament in the text of Samuel's account, and which was heedlessly overlooked in the delight of having found the long sought diagnosis. This ancient conviction is clearly evident here, viz. that the apholim must needs be an affection of a kind which *infestavit posteriora*. Notwithstanding its shortcomings, this concept in a way came nearer to the truth than the alluring diagnosis of bubonic plague. I am about to prove the untenability of this officially approved diagnosis and to show that those ancient narrators must have been very well aware of the appearances they described, although their expressions were not very happily reproduced.

THE UTILITARISTIC APPROACH TO THE HISTORY OF MEDICINE

(What can the practising physician learn from historical methods of healing?)

BERNARD ASCHNER

The management of arthritis.

In a recent discussion at the Society of History of Medicine in New York the different approaches to history of medicine were pointed out. There was talk of a sociological, psychological, economical, bibliographical and philosophical approach. Among others also the utilitaristic approach was mentioned by the guest-speaker Professor Shryock from Philadelphia. It seems to me that since medicine is mainly the practical science and art of healing this utilitaristic approach is more important than all other items together. This very utilitaristic trend however is not only neglected but also frowned at. How can we expect our universities and practising physicians to learn methods of healing from history, if nearly everybody among our up-to-date physician tells you that he was brought up in the belief that everything before our truly "scientific" era of the last 100 years was unscientific nonsense and superstition?

This statement which can be confirmed every day, if we ask medical students, teachers and practitioners, is a sacrilege against the very principles of any true science, and especially of medicine. It has always been one of the basic axioms that no true science can exist and develop harmoniously without an intimate knowledge of its history and without philosophical penetration. But these two fundamentals are violated by our up-to-date system of medical education and practice. Collecting exact unrelated facts seems to be the only aim and no scientific system is guiding modern research.

In a former article *Neohippocratism in Every Day Practice*[1] I tried to demonstrate that since antiquity at least within the schools and hands of the great masters medicine always endeavoured to be scientific with the means available at the respective eras. Our up-to-

[1] *Bull. of Hist. of Med.*, vol. X, No. 2, July, 1941.

date scientific means and methods are as relative as were theirs. Nobody can deny that ancient Greeks and Romans used mathematics, physics and chemistry as well as their natural philosophy as basic and auxiliary sciences to medicine in order to give a rational explanation, as we do with modern physics and chemistry which will be outmoded and obsolete in another hundred years too.

It is often overlooked that according to our best historians, rationalistic medicine alone is not enough. It must be completed by a great many empirical methods. For in order to use only rationalistic methods we must know all the refined details of the organic processes in health and disease. But as we are still very far from that goal, and to tell the truth, we are not likely to reach it even in centuries, we must use the practical methods handed down by tradition, called with a somewhat despising by-taste "empirical."

Modern shock treatment for schizophrenia, e. g. although very effective is completely empirical and not at all rationalistic, because admittedly we do not know either the cause of schizophrenia or the mechanism whereby the shock treatment cures this disease.

Moreover we should consider that fashions and systems change in medicine and often valuable practical methods are discarded because they do not seem to fit into the new version. Today we are not only in a rationalistic extreme, despising empirical methods more than is wise but we are also under the influence of Virchow's anatomical cellular or solidar pathology and do not understand the methods of the former humoral pathology which were established as extremely valuable during the past.

There is one main feature which distinguishes traditional medicine from up-to-date experimental medicine: from Hippocrates until Virchow's era it was an axiom that the majority of all diseases did not come from without, like infection or injury, but from within by a surplus of foodstuff and metabolic waste products. Consequently the methods of elimination such as diet, purging, vomiting, sweating, diuresis, bleeding and draining through the skin (in a superficial way called "counter-irritation") were the main pillars of all former medical systems including the Primitives, the medicine of the Far East and Sanskrit medicine up to the refined classics of the 18th and beginning 19th century like Hufeland and Johann Peter Frank.

These very methods of elimination especially bleeding, counter-irritants but also proper purging are considered as obsolete. This neglect of basic practical methods is one of the main reasons why in spite of all modern progress our results in chronic diseases e. g. in arthritis and allied conditions are much worse than they were in the pre-experimental era. The same can be said for many other chronic but also acute diseases, e. g. pneumonia. These are not mere theoretical speculations. We have established this truth by combining historical methods with modern diagnosis and technic in the form of constitutional therapy for the last 20 years. I wish to demonstrate this alarming fact by the example of arthritis.

Treatment of arthritis in history.

Hindu medicine already used general and specific methods of elimination including leeches, cupping and cauterization successfully even in case of knotty arthritis, ankyloses and contractures. The resin Bdellium was praised as a specific internal resolvent.

Hippocrates likewise explained arthritis as a surplus of material and strongly recommended elimination by diet, purgatives, bleeding and cauterization with flax and live iron. This was followed successfully throughout all antiquity and Galen claimed that he cured in a relatively short time such arthritic patients "even—who could not walk anymore but had to be brought to him by car." Especially he stressed a method of blistering in which the skin was opened and a steady stream of serum trickled out of the vesicles.

If we look at our up-to-date methods we find that everything is done, except the methods of elimination. We are injecting all kinds of material (gold, sulfur, salicylates, protein, vaccines, bee venom, etc.) we use X-rays and diathermy but elimination by bowels and skin is not used at all, and is moreover considered as quackish. This is a fatal error and explains our failure in this field.

The national health survey of the United States in recent years shows that rheumatism with a frequency of nearly 7 millions of patients a year ranks first among the chronic diseases, second as a cause of invalidity; and it leads all other diseases in duration. But nevertheless all that is offered by the present trend is removal of infecting foci, physical therapy, hormones, vitamins, surgery, rest

and diet. The results as we all know are unsatisfactory. This condition cannot be changed by scientific congresses and by large expenditures for new clinics and new laboratories, but only by a change of mind in studying the astonishing results of the past especially the discarded methods of elimination which are confirmed in practice by modern constitutional therapy.

But let us go farther in history. The ancients observed that even the most severe forms of podagra and also chronic coxitis, neuralgia and sciatica occasionally were cured by coincidence of dysenteria. Consequently they used irritant enemas also often with good results.

In the Middle Ages Alexander Trallianus in Byzantium definitely claimed to have cured the most serious cases of chronic (hypertrophic) arthritis and podagra with a compound purgative called "hiera pikra" which contained aloes and agaricus as main ingredients. The same claim was made before him by Scribonius Largus and after him by many other physicians.

Arabian physicians like Avicenna, Rhazes and Abulkasis too considered arthritis, podagra, neuritis, neuralgia, and rheumatism mainly as a metabolic disturbance and tried to correct them by alterative and specific purgatives. But they were also masters in ignipuncture in which we are ignorant today. Our highbrow attitude to this century-old established and highly effective method is as foolish as the underestimation of an enemy's fighting force.

It is still more exciting if we read extensively in the writings of Paracelsus that aurum potabile in its different forms "is the highest and most powerful remedy in arthritis and podagra." Moreover the later alchymist Poterius gave a number of case histories in his three Centurias of "Outstanding Cures." [2] He quotes cases of severe acute, and also chronic polyarthritis and his main remedy too was "aurum diaphoreticum." He literally says (centuria prima caput 46): "dato tandem pulvere nostro antipodagrico, ad 5 vel 6 dies tantum cito et jucunde convaluit." In chapter 34 he says that after the use of this same gold medicine in another severe case "hoc indomitum morbi genus penitus cessit. Pulvis antipodagricus est aurum diaphoreticum." The same statement that collodial gold preparations are very effective

[2] Insignium curationum centuriae tres, edited by Frederic Hoffmann, Genova, 1749.

in contractures we still find in Schroeder's Thesaurus Pharmacologicus in the 18th century. If we consider that injections of gold are still controversial today because of their potential dangers by parenteral application, we can see how superior the traditional methods were in this particular item.

Ambroise Paré in the 16th century as well as Paracelsus stated that any treatment of a severe arthritis without eliminating the irritant metabolic products by proper highly differentiated purgatives (like Jalapa, Scammonium, Aloes, Colocynthis, Agaricus, etc.) in addition to the alteratives like mercury and antimony is incomplete and unscientific. This is till more true of the draining through the skin in form of blisters, artificial rashes, fontanellas and ignipuncture, which often alone can cure arthritis as I have often quoted in my textbooks and demonstrated before medical societies in Europe. The number of all these internal and external methods is considerable and our up-to-date arsenal of half a dozen routine methods and remedies in comparison to traditional methods looks very poor and so are our healing results.

Ambroise Paré, certainly one of the most outstanding and reliable figures in the history of medicine, quotes two striking anecdotes in which he cured cases of severe arthritis suffering from excruciating pain in a few days simply by making fontanellas (artificial ulcers) and another anecdote in which emetics had the same effect, a method which was already recommended by Hippocrates and his followers as one of the most powerful factors to resorb arthritic deposits by stimulation of the lymphatic system.

These are not mere historical and obsolete curiosities. I together with my fellow-workers, have investigated most of these methods and found them still effective. May I quote here one striking experience of my own.

After a lecture on constitutional therapy which I gave at the Medical Society in Amsterdam, one of the physicians presented to me a case of chronic coxitis in a woman of 27 years which had been existing for 2 years since her last confinement. All possible methods of surgery, internal medicine and physical therapy had been administered in vain. The patient could walk only short distances with the use of a cane because of pain and restriction of mobility. I applied

a cantharides plaster upon the great trochanter (two inches square) for 24 hours. Afterwards I removed the epidermis of the blister and painted the area with concentrated nitric acid, producing a thin eschar. Only a few minutes after the burning sensation of the etching had succeeded, the patient was able to walk painlessly without the cane and to do gymnastic exercises. The eschar was maintained by the family physician through weekly etchings for another 6 weeks and the patient was cured permanently. Many explanations are possible. But the instant effect reminds us of blocking the nervous reflexes through local anesthesia. Moreover, changes in circulation and local metabolism seem to be involved. But whatever the rationale may be, this method has been established for centuries and ought to be used in everyday practice.

All of the great surgeons and physicians of the Middle Ages and Modern Time until the beginning of the 19th century used counter-irritants and cauterization successfully in cases of arthritis, neuritis and neuralgia. Are our results so superior that we can dispose of these traditional methods? We think not. We could write several books about such interesting quotations and case histories in traditional medicine. For men like Fabricius Hildanus, Percy, Minderer, Dionis, Boerhaave, van Swieten, Hoffmann, Stahl and Hufeland it was almost considered as malpractice not to use alterative resolvents by mouth and draining through the skin by counter-irritants and cauterization. Hufeland directly said that the severest forms of arthritis often can be overcome only by artificial ulcers and fontanellas.

At the beginning of the 19th century the European surgeons Rust and Chelius and also the famous Pott (after whom the Pott's disease is called) claimed that they could cure tuberculous arthritis, fungus and caries of the limbs and the spine by deep cauterizations with live iron and the most spectacular cures have been described which were achieved within a few weeks. Today it takes months and years to cure these tuberculous diseases of the bones and joints, and no attempt is made to learn from our successful predecessors.

Another step-child of practical medicine is the use of artificial rashes, mainly produced by certain proper compositions of croton oil with or without using superficial acupuncture. This combination is called the exanthematic method of Baunscheidt which was very

widespread in Central Europe during the last 50 years and was efficient in cases of arthritis, neuralgia, neuritis and lumbago. From my own experience and that of many other European physicians I may confirm the fact that the most spectacular results can be achieved with this procedure and it is a pity that this method is neglected in the otherwise unsatisfactory management of rheumatism, arthritis and allied conditions.

Today the problem of arthritis is handicapped by the idea that arthritis is either caused by focal infection or by an irreparable degenerative process (the so called hypertrophic osteoarthritis). Infectious arthritis concerns only a minority of cases, about 10-20%, mostly involving younger individuals under 40 years of age. Moreover, removal of foci alone admittedly does not cure the arthritic pathology, and other methods have to be applied. Among them should be the methods of elimination.

The vast majority of all cases of arthritis concerns middle aged and elderly individuals. Former clinicians spoke of uric acid diathesis as a main factor causing arthritis, neuritis, rheumatic diseases of the internal organs, etc. in aging persons. In other words arthritis and allied conditions were considered as metabolic disturbances and treated in spas with saline laxatives. This was a sound procedure and worked out to a certain extent. But this was not enough and it has to be completed by the more intensive methods of alteration and resolution including draining through the skin.

Very characteristic for the present approach to this problem is a discussion on the effect of gold salts and rheumatoid arthritis [8] where Dr. Russell Cecil, one of the most outstanding experts in this field said the following: "In fact, some think the patient gets the most striking benefit when he shows some toxic effects such as a skin rash, a sore mouth, or something of that sort. That has been my experience. Others do not want to admit this."

During the same discussion Dr. C. H. Wheeler said: "We had a patient in the hospital, who developed a severe exfoliative dermatitis from the gold, but who experienced so much relief from the arthritis, that he would willingly spend several weeks in the hospital with dermatitis again, if it were necessary, in order to secure such benefit."

[8] New York State J. M., April 1, 1941.

Our comment to these thrilling facts is that dermatitis, sore mouth and other toxic irritations in different organs act as a diversion or revulsion of morbid matter from the arthritis joints to other parts. This coincides with traditional observations that dysentery (Hippocrates, Galen etc.) often may cure the severest forms of arthritis. This was imitated successfully by ancient physicians until a hundred years ago by the use of the most drastic laxatives.

The Dutch physician Tulpius in the 17th century observed that many cases of arthritis were cured by occasional outbreaks of the skin like small pox, itch, measles erysipelas and by rashes caused by the sting of insects (bees, ants, mosquitoes), or by irritant plants like nettles, rhus toxicodendron or poison ivy. Consequently such outbreaks were produced artificially by counter-irritants and amazing results were described in the scientific literature of that era of humoral pathology. With the appearance of Virchow's system of cellular pathology these valuable methods of past medical authorities and former scientific systems were discarded and ridiculed as old-fashioned, obsolete, useless and quackish.

Doesn't it seem obvious that toxic dermatitis in the gold treatment of arthritis is working at least partly as a counter-irritant by revulsion and derivation and that it may be substituted by more harmless counter-irritants such as cantharides plaster and croton oil? Moreover physicians of the pre-experimental era cured arthritis in a similar way as syphilis in provoking mercurialism with such toxic by-effects as sore mouth, dermatitis and other revulsive effects. We should learn from such observations and look at that gold treatment from a more general medical angle.

Yet, Dr. Cecil asked in a recent discussion (New York Polyclinic Hospital, January 4, 1943) whether he believes that there is any relation between gold dermatitis and remission of arthritic symptoms he denied such a connection saying that " dermatitis is only a symptom and therefore has no bearing to the cure itself." Apparently he has changed his mind since the former discussion, mentioned above.

If we would think not only in a too localistic, too specific, way but in more general terms, as did traditional humoral pathology, we would understand the hints of nature better and draw the therapeutic

consequences, using all available means of derivation and elimination in case of arthritis.

It was a shocking situation that in all countries of Europe laymen healers and medical outsiders had an international crowd while possessing secret internal remedies and methods of blistering which were able to cure the most refractory cases of arthritis and neuralgia, whereas academic medicine stood by speaking contemptuously of quackery but ignoring the fact that these same methods were the most successful procedures of classic medicine, understandable in terms of humoral pathology only and therefore discarded to the disadvantage of our patients and left for the benefit of medical outsiders and quacks.

Scientific prejudice and lack of historical survey still are blocking the way for the full use of these indispensable and often spectacular methods. In my textbooks [4] these methods are described in detail and many case histories of cured patients are quoted. Other followers of constitutional therapy in Europe and also in the Near East, Egypt and South America have confirmed the same good results.

Arthritis, rheumatism and allied conditions are only one example to show how much our practical medicine would gain by an unprejudiced and thorough study of the pragmatic history of medicine. We would like to demonstrate in other articles that the whole approach to everyday problems like stomach diseases, headache, migraine, diseases of the eye, ear, skin, the circulatory and nervous system, the female organs, the mental diseases is an entirely different one, if we combine tradition and progress. In general the outlook is much more promising and optimistic. The therapy is on a much broader base. The methods of alteration and elimination are able to enhance our results greatly in otherwise refractory cases. There is no doubt that the utilitaristic approach to the history of medicine will bring about a Renaissance-like re-orientation, enriching greatly our healing capacity in all branches of medicine. But this movement requires the cooperation of our universities and medical schools.

[4] Textbook on Constitutional Therapy, Stuttgart, 1928; 7th edition 1934, and Technic of Constitutional Therapy, Berne, 1936.

THOMAS BEDDOES AND HIS CONTRIBUTION TO TUBERCULOSIS *

MAURICE S. JACOBS

Shropshire is to be remembered not only for Withering and his "discovery" of digitalis but also as the birthplace, in the town of Shifnall, of Thomas Beddoes on April 13, 1760. From his very youth he followed both literary and scientific pursuits chiefly under the influence of his grandfather who envisaged a bright future for his grandson and had urged that he be given the opportunity of a University education. At the age of thirteen, when he had completed the curriculum available in the local schools, where he had already acquired the epithet "the little Doctor," because of his interest in medicine, he was placed under the tutelage of Reverend Samuel Dickenson, Rector of Plymhill, Staffordshire, "a gentleman of great science and erudition."

He spent several years obtaining a "classical learning" and appears to have gained the warm commendation of this teacher for his diligence and aptitude. Says he, "During the time that Dr. Beddoes was under my care his mind was so intent upon literary pursuits, that I do not recollect his having devoted a single day, or even an hour to diversions or frivolous amusements of any kind." He had a fine sense of rectitude, his temper was unruffled nor was he quick to anger.

Young Beddoes was ready for Oxford at sixteen and entered Pembroke College in the Michaelmas Term, 1776. Here he early made a name for himself not only as a classical scholar but also because of his interest in science, for he had already decided upon medicine as his career. The work of Priestley was at this time engaging the minds of most scientists and Beddoes was among those powerfully impressed with its possibilities. He began to study the subject experimentally as well as theoretically and "soon became Master of Pneumatic Chemistry as far as it was then known." In

* Read at the 18th Annual Meeting of the American Association of the History of Medicine in Atlantic City, N. J., on May 5, 1942.

addition he pursued his studies in mineralogy and botany. Of his love for botany he has left striking proof behind him in the " Flora Britannica."

After getting his Bachelor of Arts degree at Oxford he went to the great metropolis to pursue his medical studies. In 1781 he became a student of the celebrated Sheldon and thus obtained a thorough grounding in anatomy. In the course of his physiological studies he was impressed with the brilliant dissertations of Spallanzani. However there was then no English translation of them and Beddoes decided to remedy this, a task performed with " spirit and success " because of his accurate knowledge of Italian in which he was self tutored, as indeed he was also in French and German. About this time he was also intrusted with " annotating " Dr. Edmund Cullen's translation of Bergman's Physical and Chemical Essays.

In 1786 he edited Scheele's Chemical Essays. He was given a masters degree in 1784 and in the fall went to Edinburgh to continue his medical studies. In 1786 Oxford granted him the degree of Doctor of Medicine.

The following year finds him on the continent visiting Dijon and Paris, where he met and became very friendly with Lavoisier and his wife.

On his return to England he was offered the chair in Chemistry at Oxford, which he held for several years. During this time his interest in chemistry led to his experimentation with various gases (which he called " airs ") and to his association with Watt and Davy, the latter coming to his employ in the Pneumatic Institute at the very young age of nineteen. Mention should also be made of his close association for many years with Dr. Erasmus Darwin from whose correspondence with Dr. Beddoes much of our knowledge about him has derived.

He led a very colorful life, being more or less constantly in the public eye. He was equally at home in scientific and literary fields having several books of poetry to his credit. His chief claim to fame in the eyes of this essayist lies in his " modern " views on prevention of disease, and especially his ideas on tuberculosis.

He published several books and many popular essays among which was an " Essay on the Causes, Early Signs, and Prevention of

Pulmonary Consumption, for the use of Families," an analysis of which forms the basis of this communication. The name of the Author and the knowledge of the peculiar attention which he had paid to the subject, combined with the intrinsic excellence of the work, secured it a rapid sale; and a second edition, to which considerable additions were made, was called for in the space of a few months.

Beddoes commences with a general view of the subject, and of the immense devastation caused by the ravages of the melancholy disease; and suggests ways of ascertaining its extent with more accuracy, than the inquirer is enabled to do by the bills of mortality and other similar documents. He proceeds to correct the common ideas with respect to the degree of suffering endured by its victims. "The personal charms of young females" he observes, "have occasioned them in all countries to be compared to flowers. Hence a young woman whose lungs are fatally affected, is a blossom nipped by untimely frost. The imagination proceeds with the metaphor; and in virtue of such poetical logic, it seems to be concluded that the drooping human being feels, no more than the drooping vegetable expresses."

He proceeds to state the general plan of his Essay, which is, to circulate such instruction "in the interior of families as may set them on their guard. Experience has shown, how little has, or can be effected by the occasional counsel of Physicians. A knowledge of the full undisguised truth seems necessary, to excite such a salutary alarm in the heads of families as might lead to the adoption of effectual means of prevention."

He proceeds to enumerate those countries and classes, which appear to enjoy the greatest exemption from the ravages of this fatal disease. "Could a doctrine of exemption" he observes, "be established, it would furnish a moral directly useful: for we should only then have to adopt, as nearly as possible, into our own conduct, the circumstances on which exemption depends. On the other hand, if it shall appear that there are whole descriptions of persons peculiarly liable to the complaint, we may stand a chance of collecting from their history a lesson equally valuable, concerning the habits to be avoided."

Under this division of his subject, he first treats of climate, and its relation to consumption. He complains of the uncertainty in which this investigation is still involved, and on the neglect of the profession in not having given the influence of their authority to elicit the necessary information; so that it seems not yet accurately ascertained, "in what circumstances phthisical invalids may with advantage remove to a more southerly climate, or to what climate they may remove with the greatest benefit." From certain inquiries he concluded that the West Indies appear to be unfavorable to the development of phthisis. Egypt and Bengal probably enjoy a similar security; and, in general, all latitudes where a regular high temperature prevails; more especially if "dryness be added to constant warmth." The character which Lisbon, Italy, and Madeira have acquired as a safe retreat for the consumptive, he considers as highly questionable; and when favorable results have attained the removal of a patient to any of these spots, he seems rather disposed to attribute them to the sea voyage.

This is one of the earliest modern pronouncements of the value of a high dry climate for the tuberculous which reached its zenith in the establishment of many sanatoria in such localities as Colorado and New Mexico. One notes with satisfaction, however, that he tempers his advice with caution, lest too much credit be given to locality alone.

He enumerates the classes which are said to be exempt from this fatal disease; with respect to whose habits of life he appears to have collected very minute information. These are first, butchers; whose exemption appears so complete, that a dissertation has been published on the Continent, suggesting the propriety of placing phthisical patients in slaughter-houses; second, makers of catgut, who, like butchers, are exposed to the scent of dead animal matter; thirdly, fish-wives and fisherman; fourth, sailors; fifth, certain classes of menial servants, more especially those employed about stables; and certain small farmers. He then enumerates those classes which are most liable to be affected by tuberculosis, as needle pointers, stone cutters, and performers on certain wind instruments. Soft powders or those "easily decompounded" may, it appears, be inhaled without injury; "not so, substance, however soft, in the form of fibres or

small splinters." Next on the list he places those artisans whose occupations are sedentary and inactive, whose posture is unfavorable, or who are exposed to inhale certain small floating particles, as tailors, shoemakers, weavers, spinners, carpet manufacturers &c.

It is rather obvious that Beddoes here includes what we would now consider to be etiologic agents for the development of pneumoconiosis and emphysema. Living as he did at the beginning of the "industrial revolution" in England, he most certainly saw a great deal of lung pathology caused by other agents than the tubercle bacillus which was not to be discovered for almost another century. Today, with all our refinements in x-ray diagnosis, we still are occasionally confronted by problems in the differential diagnosis of tuberculosis and pneumoconiosis. This is more especially true of cases dying of so called "miner's asthma."

Beddoes made inquiries to ascertain the predisposition of whole countries to tuberculosis. Thus he found that the Dutch, (those of them at least who retain the ancient manners of their country), are said to be remarkably exempt from scrofulous and phthisical affections. This results from the fact that the Dutch of both sexes rely for security against the effects of a humid climate, upon warm clothing, and in the case of females the use of a small stove to keep the feet warm. Their rooms are large, very inadequately protected against the cold breezes of winter, and very imperfectly warmed; but their dress renders them insensible to these circumstances. In this respect they appear to adopt a plan exactly the reverse of that pursued in Great Britain, where the dress, among females more particularly, is utterly inadequate to protect the body against variations of temperature; and the deficiency is attempted to be supplied, by rendering the rooms nearly air-tight, and heating them excessively.

A modern touch is seen here again. All present-day sanatoria and tuberculosis hospitals stress the importance of fresh air even in the dead of winter. The distinction is clearly shown between keeping the body warm and the environmental temperature cold as against heating the room to a comfortable degree.

From Sir J. Sinclair's statistical reports of diseases in Scotland it appears according to Beddoes, that rheumatism, consumption, and low fever, are the prevailing disorders. "The two former," he

observes, " stand in a sort of contrast to each other. A multitude of testimonies, may be brought to prove that, in general, women, especially those who follow still employments; and men engaged in the almost feminine occupations of the clothing manufacture, become frequently consumptive: whereas the husbandman and the shepherd, being incessantly obliged to expose themselves to the vicissitudes of the climate, and untaught to employ any precautions against the effect of these vicissitudes, become crippled by the rheumatism, and wear out a wretched existence, under the constantly returning pains of this severe disease." " The prevalence of these two diseases, which now extend their ravages in a degree unknown to the ancestors of the present generation, seems to have kept pace, in a remarkable manner, with the introduction of light cotton dresses, instead of the warmer plaid which was formerly worn; a fact which remarkably coincides with what has been said with respect to Holland. So long as the inhabitants retained the warm cloathing of their ancestors, consumption was scarcely known, and seldom fatal."

From these facts Beddoes deduced the following general inferences. Of the classes so privileged as to be exempt from phthisis, it may be remarked, that they all agree in certain leading particulars; in eating plentifully of animal food, in being remarkably exempt from scrofula, in the nature of their occupations being particularly calculated by habitual exposure to render them hardly, and in being often subjected, with one or two exceptions, to the influence of an atmosphere more or less contaminated by animal effluvia. To the latter circumstance however, he is not inclined to attach much importance: he rather attributes the fortunate exemption of such persons, to the hardihood generated by their occupations, and the nature of their diet.

" The salutary effect of animal diet in preventing Scrophula is now generally known; and the mistakes of those prudent parents who imagined that by confining their children to a vegetable diet, they were purifying their blood, while, in reality, they were starving them into scrophula, are now generally recognized and avoided." The analogy between scrofula and phthisis points out the propriety of an analogous plan of prevention, and Beddoes sums up his advice with a recommendation to use animal food freely, wherever " habitual

weakness or the history of the family gives reason to apprehend consumption." "The unwholesomeness of mere variety of food is a popular error, that requires the more to be exposed, because it may prevent persons who want nourishment, but have a fastidious palate, from eating as much as they otherwise would. Our classical moralists, who sometimes seem to think mere good intention, a qualification for treating authoritatively a topic they do not understand, have sanctioned this error, and it derives some credit, perhaps, from the pious folly of fasting. But all indulgencies are far from being equally mischievous to health. It is not, as Addison supposed, among high dishes, that gout and palsy lurk. They rather resemble those fiends which enchanters of old are said to have imprisoned in phials; and which did not assume their proper infernal shape, till the seals were broken and the liquor discharged into the human stomach."

From diet he proceeds to the consideration of exercise, which he regards as the great means of invigorating the system; and of the neglect of which he complains, as increasing to a pernicious extent, the disposition to phthisical affections. Even among boys it is scarcely pursued with sufficient activity, but among girls its neglect is notorious. "Nature," says Beddoes, "for the most beneficial purposes seems in our early years to have combined two propensities, activity and curiosity; the desire to exercise our limbs and our senses. And the time is perhaps, not far distant, when parents shall discover that the best method of cultivating the understanding, provides at the same time, most effectually, for robustness of constitution." But though parents may find that their children's natural propensities will induce them to co-operate in exercise with eagerness and vivacity, Beddoes acknowledges the difficulty of providing or recommending such active occupations as might wean adults, those of the female sex more particularly, from the indolence which the tenor of their pursuits soon renders habitual. "Yet he who established it as a maxim, that the Gods sell all good things for labour; if the state of society in which he lived, had required him to be more pointed and particular, might have laid it down that the Gods do not sell health, the best of things, but for labour. Botany and gardening abroad, and the use of a lathe, or the study of experimental chemistry at home, present some resources. Certain domestic amusements, as shuttle-

cock, &c. might add to the list; and it might be still farther increased by reviving old, or inventing new games, which would require active exertion, and might beguile the heavy time of evening visits." He acknowledges that the first attempts to put into practice such an innovation, that is, active exercise would appear, "even to those most convinced of its utility, more ludicrous than dancing, if familiarity had not taken away its power to produce laughter."

It seems remarkable indeed that the world could so completely have forgotten the examples set by Greece on the value of mass exercise. Apparently this phase of community life must have reached a low ebb in Beddoes' time to have necessitated the remarks just quoted.

He next gives a physiological and pathological view of the effects of variation of temperature; and enters into an elaborate discussion upon the relation between Catarrh and Consumption, that between the scrofulous temperament and consumption, and the formation of tubercles. Nothwithstanding the complexity of this part of his subject, he treats it with remarkable clarity; and explains several interesting physiological facts, in such a manner, as to render them intelligible to the lay reader, for whom the volume is intended.

The important inquiry whether or not consumption has increased in frequency, next passes under his review. In the absence of authentic documents to enable him to determine this question with accuracy, vital statistics not yet being accurately tabulated, he proceeds to an analytical consideration of such causes as act upon the constitutions of his contemporaries. He theorizes that the customs of his ancestors as to diet, exercise, and other less important particulars, gave them a decided superiority over his own generation. The amusements of both poor and rich were of more active and athletic cast; nor had the luxury of the higher classes condemned so many of the lower to sacrifice the enjoyment of life, and often life itself, in unwholesome and sedentary occupation. He then proceeds to give a sketch of the phthisical habitus, and as he had, in a former part of his treatise, spoken at length of the association between scrofula and consumption, he begins by describing the principal indications of a scrofulous habit, many of which are signs of consumption also.

The next topic which he discusses is the effect of baths of different temperature. He first treats of the blood-warm bath, upon the

advantages of which he largely insists, and combats the generally prevailing prejudices as to its relaxing or debilitating effects, by copious details of the customs obtaining, in this respect, in foreign countries, where the invalid is frequently immersed, not only without injury, but with advantage, for hours in succession: and where this treatment has been observed to be especially beneficial in diseases marked by the greatest prostration of strength. Without recommending its use to an extent which appears in some instances to be extravagant, he regards these facts as incontrovertible proofs of the safety and benefit of its more moderate application, especially in the early stages of phthisis: in its more advanced stages he considers its use too hazardous to be lightly resorted to.

The succeeding section is devoted to the consideration of "Bed-warmth," the effects of which Beddoes considers as in many respects analogous to those of the bath. Under this head he delivers a most important practical rule. "Whenever a person of feeble habit feels heated in the morning, let him rise without a moment's delay." The heat of the bed is often increased considerable above that salutary point, which like the warm bath, at once imparts refreshment and vigour; it then produces fever, langour, and inactivity. Even the healthy may suffer some inconvenience from this source, but the invalid cannot hope to escape from it.

In examining the effects of the cold bath he issues words of caution "to the weak, but especially to the phthisical." Persons in such a state should be warned against a hasty conclusion, that because it imparts fresh tone and vigour to those already robust, it will produce equally beneficial effects upon the feeble. Several causes are detailed in which its operation proved highly injurious. "It may be in general asserted," says Beddoes "that no measure more certainly enfeebles the weak, and more frequently excites pulmonary consumption in the pre-disposed, or hurries on the disease faster, when it is forming."

In fact cold, even in less concentrated form, will often prove destructive to persons with weak lungs. Many have sustained irreparable injury from going in the winter season into damp churches, "so that consumption has sometimes been distinctly traced to a chill received in such a situation." Another source of mischief pointed

out, is the custom which obtains among the daughters of less opulent families, of dressing for evening parties, in the depth of winter, in apartments without a fire. In order, in some degree, to obviate the pernicious consequences resulting from this practice, he advises that a small quantity of warm water should be taken occasionally; " which will prevent the chill, without producing any bad effect, if no more be taken than just enough to keep the sensations comfortable." Even washing the head with cold water, without sufficiently drying the hair afterwards, appears to have excited alarming symptoms in the phthisically disposed.

He proceeds now to give a popular account of the signs of incipient tuberculosis; not with the view of instructing the unprofessional in its medical treatment, but to put them on their guard against impending danger. The first signs which he points out are lassitude and indisposition to exertion, which have often been mistaken for indolence. The next is an increase in the pulse rate, which becomes particularly evident after the simplest meal or slightest exertion.

It is interesting to note Beddoes' astute observation regarding the pulse. Even today not many realize the importance of a rapid running pulse as an early sign of pulmonary tuberculosis. This was pointed out by the present author many years ago as being more important than dyspnea or tachypnea and a much earlier sign than many others usually regarded as indicating the presence of tuberculosis. With this symptom is often connected some difficulty, or increased quickness of respiration. These are not laid down as absolute signs of consumption, but as signs that render caution and the discrimination of a medical person necessary.

Beddoes distinguishes between true difficulty in breathing, dyspnea, and " increased quickness " of respiration, tachypnea or polypnea. Before there is much damage to the lung, as in early phthisis, a slight increase in the respiratory rate during rest or moderate exercise may point the incriminating finger to the lung as the seat of pathology. Although to be sure, one must not lose sight of the fact, that poor exercise response, with increase in respiratory rate may just as often be an early finding in rheumatic carditis with right heart strain.

The propriety of exercise is next considered. In the regulation of

this, greater caution is necessary than is commonly apprehended; as its effects are salutary or injurious, according to the state of the individual. " Incessant horse-exercise has appeared to snatch some almost from the borders of the grave; while others have been precipitated thither, from having been forced by their friends to exertion in defiance of nature."

He next offers some reflections " on the removal of the indisposition immediately preceding pulmonary ulceration, and on the prospect of a cure for confirmed consumption." He draws a melancholy, but all too correct picture of the general progress of the disease, and inquires whether its almost unvaryingly fatal termination is still to be regarded and submitted to as an inevitable evil, or to be considered as a motive for a more diligent search for an adequate remedy . " The increasing light that has been shed upon the science of medicine, and a clearer insight into the composition of the animated system, have" he observes, " suggested remedies for diseases hitherto esteemed hopeless." He here obscurely glances at the brilliant discovery of Davy, which had not been made known to the world.

It has been mentioned that Davy, later to be Sir Humphry Davy, had joined him in the Pneumatic Institute at Clifton. Here he had been working with various gases, oxygen, nitrogen, carbon dioxide etc. It was here that Davy, in 1799, discovered the anesthetic properties of nitrous oxide. In addition they had carried out experiments with various concentrations of oxygen based on the assumption that in certain diseases a higher percentage of oxygen might have a salutary effect. Thus the Institute flourished for a while on the treatments given to tuberculous patients using higher concentrations of oxygen than are present in the atmospheric air. It must be stated to Beddoes' credit that although Pneumotherapy was his own brainchild, he did not believe it accomplished all he had hoped it would and hence did not stress its use too strongly or publicize its effects too widely. In his book, " On Factitious Air," written with James Watt, he indicates his disappointment in that the inhalation of artificial " airs " has not produced the anticipated results. In alluding to the imperfect trials made with them, he admits they had been " far from establishing anything like a successful mode of treating consumption."

In this pamphlet, however, he proceeds to announce, in sanguine terms, a remedy that " promises to be sometimes effectual in operating the absorption of tubercles." This remedy was the fox-glove. It had been successfully administered in some cases that appeared desperate, by Doctors Drake and Fowler, and the reports of this success had kindled his enthusiasm, and elevated his hopes to a very high degree." " In the first moment of anticipated victory over the giant malady which it had been the object of his life to oppose," says his biographer, Stock, " he expressed his hopes in terms too general and decisive; and made a loose comparison between the powers of digitalis in phthisis, and Peruvian bark in ague." This passage was eagerly caught at by the enemies of speculative enquiry and found a ready echo from the stupid and malignant; and if frequency of quotation could give importance to the sentiments of a medical writer, it might, as the Author observed in a subsequent publication, " for its standing, vie with any aphorism of Hippocrates." No allowance was made for the warmth inspired by an ardent zeal for the interests of humanity, nor for that liberality of sentiment which led him to extol the discovery of another, with as eager an interest as the selfish practitioner manifests in recommending one of his own. " The passage was modified in the second edition of the work. But although this so immediately succeeded the first, to notice the correction or modification of the sentiments originally expressed, did not suit the opponents of medical improvement; and they still continued to quote from the first edition. I believe that he never found any occasion, from subsequent experience, to retract the more guarded opinion expressed in the second; and to the close of his life, it continued to be a favourite and a successful medicine."

One may wonder at this time what criteria doctors of a previous day used to gauge improvement in certain diseases. Being close to the scene of the discovery of digitalis and with full awareness of Withering's brilliant contribution, it is easy to understand the almost natural employment of this drug in phthisis if the doctor were guided by the pulse alone. But it is hardly likely that the chest symptoms and signs were comparably improved. At any rate, for a generation or longer fox-glove held sway and was supported by the experience of others besides Beddoes.

He concludes his work with a summary of the principles contained in it; and takes the opportunity of again urging the necessity of a more general attention to the laws of the animal economy among the laity. " Perhaps," says Beddoes, " I may have contributed towards the attainment of remote good, if I have given unprofessional readers, juster views of medicine as it is, and higher views of what it may become. For it is time for mankind at large to feel that the investigation of things appertaining to health, is no exclusive business of the medical faculty; and that till we shall engage in the study of the laws of our own existence, as a common concern, so long will multitudes continue to groan in unnecessary agony, and be cut off from society before their time."

Unfortunately, Beddoes' work fell on fallow soil, possibly because of his sponsorship of a cure of the disease by " factitious airs " and fox-glove. His preventive measures and education of the laity for early recognition of consumption, should place him, however, among the unsung heroes of medicine who are likely to be forgotten.

TEXTS AND DOCUMENTS

TWO FIFTEENTH CENTURY ANATOMICAL DRAWINGS

HENRY E. SIGERIST

Mr. H. P. Kraus in New York possesses two fifteenth century volumes which are interesting in many ways. They both contain various incunabula of Aristotelian texts with commentaries from the Dominican school, all of them Cologne prints. Such books that were used as textbooks in the schools of religious orders are frequently found bound together.

The value of these two volumes is greatly enhanced by the fact that each one contains a full-page manuscript anatomical drawing. Although these two figures were made at about the same time and although they both illustrate the same subject, yet they are both totally different in style.

I

The first volume contains the following two incunabula:

1. *Copulata super octo libros Physicorum Aristotelis . . . Copulata . . . Lamberti de Monte artium ac sacre theologie professoris . . .*
   [Cologne, 1485] [1]
2. *Copulata super tres libros Aristotelis de anima . . . Notata . . . Lamberti de monte artium magistri ac sacre theologie professoris iuxta doctrinam insignis et sancti doctoris Thome de Aquino . . .*
   [Cologne, 1485] [2]

Lambertus de Monte, as he is usually called, or Lambertus de "Monte Domini" [von Heerenberg],[3] was a disciple of Gerhardus de Monte and one of the most influential Thomists. He was rector of the University of Cologne in 1478 and died in 1499.

[1] Arnold C. Klebs, Incunabula scientifica et medica, *Osiris*, vol. IV, Bruges, 1938, No. 583. 1.

[2] Klebs 582. 1.

[3] Ulysse Chevalier, *Répertoire des sources historiques du moyen âge*, Paris, 1905-1907.

This volume containing the two incunabula was actually used as a school book in the monastery of the Dominicans in Frankfurt from 1497 to 1518. This is evidenced by numerous manuscript notes, some of which are serious and some facetious, the pranks of young students. They have been analyzed in detail by W. K. Zülch.[4]

The illustration (fig. 1) was drawn on the blank verso of the last leaf of the second book. It represents a monk, and illustrates the seat of the sensory organs and of the mental faculties. The inscriptions read, beginning at the bottom:

Sensus Tactus per totum corpus etc. Item per me fratrem silvestrum coci dyaconum sancti ordinis fratrum predicatorum filium conventus franckfordensis facta est hec ymago anno salutifere incarnacionis domini 1497.
Organum sensus Gustus
Organum sensus olfactus
Organum sensus Visus
Organum sensus auditus
Organum sensus communis
Organum virtutis ymaginative
Organum virtutis cogitative
Organum virtutis memorative

And on the ribbon on top we read:

Intellectus extra virtus inorganica in umbra intelligencie creatus etc.

In other words, the picture was drawn in 1497 by a Dominican friar of the Frankfurt monastery in order to illustrate Aristotle's *De anima*. The style of the drawing is mediaeval and follows traditional lines. Similar ribbon inscriptions occur frequently in 15th century woodcuts and paintings such as, for instance "The Lovers" by the *Meister des Hausbuchs* in the Museum of Gotha,[5] or paintings by Hans Holbein the Elder.

[4] Ein Schul- und Studierbuch der Frankfurter Dominikaner 1497-1518. *Frankfurter Bücherfreund. Mitteilungen aus dem Antiquariat von Joseph Baer und Co.*, 14. Jahrgang, 1920-21, Neue Folge III, Heft 3, pp. 93-94, plate XLI.

[5] Hermann Schmitz, Die deutsche Malerei, vol. III, plate XXXIV A, in *Handbuch der Kunstwissenschaft*, Berlin, 1919.

Fig. 1.

Anatomical drawing of 1497.

Original size: 290 x 210 mm.

Courtesy of H. P. Kraus, New York.

There is one more point on the picture that requires interpretation. Under the left eye are words which read:

Kocheyn heyss ich in baroco

What does that mean? Zülch thinks that "Kocheyn" was the nickname given in philosophy courses to such a didactic picture, possibly only in the Frankfurt school language.[6] It may be, although the explanation seems rather far-fetched. I am inclined to interpret the words differently.

The artist calls himself *frater silvester coci*. Coci is the "son of Cook." In other words, the artist's full name was in all probability Silvester Koch, or Kochin, or Köchlin. The picture looks very much like a portrait. The nose notably is anything but conventional; it is a very individualistic nose. It may well be that the artist, consciously or not, drew his own picture. A facetious student recognized it, and without any respect for his elders wrote on it "my name is Kocheyn." Baroco is a technical term of formalistic logic. The Oxford Dictionary defines it concisely as "a mnemonic word, representing by its vowels the fourth mood of the second figure of syllogisms, in which the premises are a universal affirmative and particular negative, and the conclusion a particular negative." Such a syllogism would be:

All great teachers are wise.
Kocheyn is not wise.
Therefore Kocheyn is not a great teacher.

It is quite possible that the student had such a classroom joke in mind. That the nose particularly struck him is evidenced by the fact that he wrote on the tip of it the word *naso*, meaning "look at that nose!" Such an interpretation is very much in line with the other facetious notes of the volume. They reveal that young students were in the 15th century not very different from what they are today.

[6] "Kocheyn heiss ich in baroco besagt, dass im philosophischen Lehrsystem = barocus eine derartige Instructionsfigur den Spitznamen 'Kocheyn' führte, vielleicht nur im Frankfurter Pennalismus." Zülch, *l. c.*

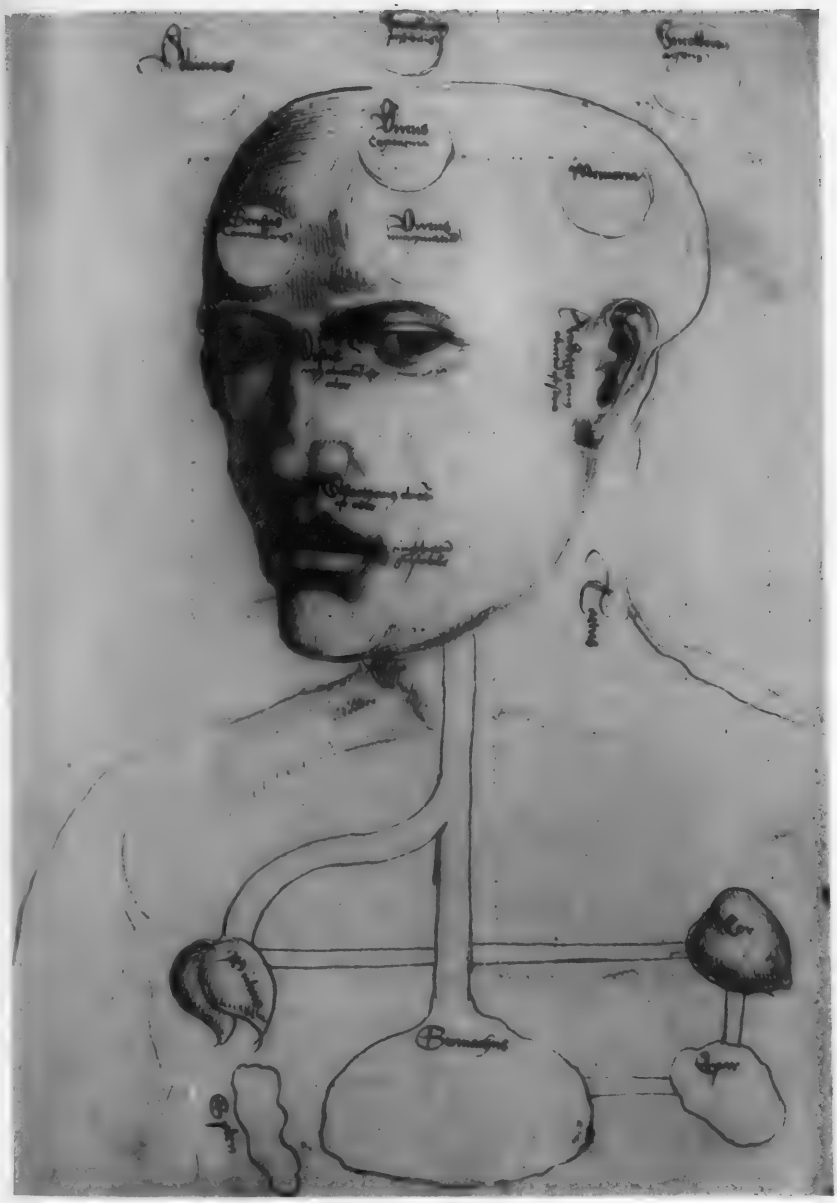


Fig. 2.

Anatomical drawing, end of 15th century.
Original size: 285 x 210 mm.

Courtesy of H. P. Kraus, New York.

II

The other volume contains the following three incunabula:

1. *Compilatio commentaria magistri Lamberti de Monte domini artium sacrarum sublimitatum interpretis perspicacissimi in octo libros Aristotelis de physico sive de naturali auditu intitulatos . . .*
   Cologne, 1498.[7]
2. *Positiones circa libros phisicorum et de anima Aristotelis iuxta ordinarium et disputativum processum magistrorum Coloniae in bursa montis regentium ad opponendum et respondendum non minus utiles quam necessarie.*
   [Cologne], 1494.[8]
3. *Expositio saluberrima magistri Lamberti de Monte circa tres libros de Anima Aristotelis . . .*
   Cologne, 1498.[9]

The drawing was made on the blank verso of the last page of the second book (fig. 2). We do not know who the artist was, but there can be no doubt that the man who drew this head was a very skillful draughtsman and a man who was imbued with the artistic principles of the Renaissance.

The text of the upper half reads:

Tactus—Gustus cuius obiectum est gustabile—Olfactus cuius obiectum est odor—Visus cuius obiectum est color—Auditus cuius obiectum est sonus

Sensus communis—Virtus imaginativa—Virtus cogitativa—Memoria

Voluntas—Intellectus possibilis—Intellectus agens

The lower half of the picture shows that the artist had no anatomical knowledge whatsoever. Not only are the five organs—*pulmo, cor, splen, stomachus, epar*—depicted very crudely, but the position of liver and spleen appears reversed which is very unusual even in primitive anatomical pictures.

[7] Klebs 583. 5. [8] Klebs 804. 1. [9] Klebs 582. 6.

III.

Both drawings were made at about the same time, one in 1497, the other after 1494, probably not very much later. Both are attached to the same kind of books, the Cologne commentaries on Aristotle's *De anima*, and both illustrate the same subject, yet they are as different in style as can be. At that time, at the end of the 15th century, the mediaeval tradition was still very strong in anatomical illustration, but Renaissance pictures began to appear in books here and there.

A well-known example of this transition is represented by the gynecological illustration to the *Fasciculus medicinae* of John of Ketham. In the first edition of 1491 the picture followed the mediaeval tradition very closely, and Karl Sudhoff was able to publish several parallel pictures from 15th century manuscripts.[10] For the next edition already, the Italian edition of 1493, a new illustration was made in Renaissance style.[11]

Illustrations similar to ours occur quite frequently in manuscript and printed books of the 15th century. They are usually found in connection with texts that discuss the localization of the mental faculties in the ventricles of the brain, such as the treatise *De anima* of Albertus Magnus, or in such general works as the *Philosophiae naturalis compendium* of Johannes Peylick (1499), the *Antropologium* of Magnus Hundt (1501), or the *Margarita philosophica* of Gregor Reisch (1504). Walther Sudhoff has made a very thorough study of the literary and graphic tradition of the doctrine of the ventricles of the brain to which the reader may be referred.[12]

[10] Der Fasciculus medicinae des Johannes de Ketham . . . mit einer historischen Einführung herausgegeben von Karl Sudhoff, *Monumenta medica*, I, Milan, 1923.

[11] The Fasciculo di medicina, Venice 1493, with an introduction, etc. by Charles Singer, *Monumenta medica*, II, Florence, 1925.

[12] Walther Sudhoff, Die Lehre von den Hirnventrikeln in textlicher und graphischer Tradition des Altertums und Mittelalters, *Archiv für Geschichte der Medizin*, 1913, Vol. 7, pp. 149-205.

AN AUTOGRAPH LETTER OF ORFILA

GENEVIEVE MILLER

A recent gift to the Institute from Dr. Harry Friedenwald of Baltimore is of exceptional interest. It consists of an autograph letter written in 1847 by Orfila, the famous French toxicologist and dean of the Faculté de Médecine at the University of Paris to M. de Salvandy, the minister of education.

Outside of France, the name of Matthieu-Joseph-Bonaventure Orfila is scarcely remembered today. He was born of Spanish parentage in 1787 at Mahon on the island of Minorca, one of the Balearic islands.[1] His father was a wealthy merchant who wanted his son to become a sailor. After one adventurous voyage during which his ship was almost destroyed by a tempest only to fall later into the hands of pirates, Orfila was convinced of his dislike for a maritime career, and he undertook the study of medicine. As a child he had received a thorough foundation in Latin, scholastics, French, English, German, mathematics, physics, and natural history from several tutors who had found their way to Mahon. From the very beginning Orfila was an avid pupil who early distinguished himself by his intellectual ability.

At the age of seventeen, he went to Valencia to attend the university, but he discovered that the instruction was decidedly inferior. With his ability to read contemporary foreign scientific literature, he quickly perceived that the contents of the courses were all stereotyped outmoded theories that gave nothing to the young scientist. He read the works of Lavoisier, Berthollet, and Fourcroy and ceased to attend the university lectures. Transferring to the university at Barcelona, he had the satisfaction of seeing chemistry instructed with the aid of experiments, anatomy practised on the cadaver, and pathology taught at the bedside of patients. After two years there the junta of commerce of Barcelona sent him to Paris as a pensionary to study chemistry in its applications to industry and the arts.

Once in France, Orfila never left the country except for several visits to his birthplace. After his arrival in 1807, he immediately

[1] Biographical data were obtained from Amédée Fayol, *La Vie et l'Œuvre d'Orfila*, Paris, 1930, and P. Bérard, *Éloge d'Orfila*, Paris, 1854.

Matthieu-Joseph-Bonaventure Orfila
1787—1853

showed his superiority and was recognized by Vauquelin and Fourcroy, the outstanding French chemists of the period. He decided to teach physics and chemistry, and his brilliant exposition of his subjects quickly attracted a large audience. When war with Spain led to his internment, for he was still a Spanish citizen, he was released through the efforts of Vauquelin. Shortly afterwards, in 1811, he received the degree of Doctor of Medicine from the Faculty of Paris.

When Orfila found that he had to support himself since the war had ruined his father's fortune, he again turned to teaching and gave private lectures in chemistry, legal medicine and anatomy. In this course he laid the foundations of a new science, *toxicology*.

There had always been the problem of determining whether strange deaths had been caused by poison. Before this time no truly scientific methods had been devised, and the whole question was very unsatisfactory. When Orfila became interested and turned his attention to the subject, it can truthfully be said that he founded toxicology. He carried on countless experiments on animals and examined hundreds of corpses in order to discover the effects of various poisons on the internal organs. He devised tests that indicated the presence of noxious substances in the body. The publications of his discoveries and conclusions were widely read and translated into other languages. He was soon recognized as the outstanding authority on such matters, as a consequence of which his advice was continually sought by the civil authorities. Later in his career a famous poison case, *l'Affaire Lafarge*, in which a beautiful young woman was convicted of poisoning her husband with arsenic and sentenced to life imprisonment, caused a great stir throughout France. Orfila was called to the case and produced evidence that her husband had received poison, but the trial led to a bitter controversy with the chemist and politician Raspail who, together with many others, had fallen victim to the young woman's charms and was convinced of her innocence. After twelve years of imprisonment she was released in 1852 and died shortly afterwards.

Orfila's first publication appeared in 1813-1815 when his *Traité des poisons tirés des règnes minéral, végétal et animal, ou Toxicologie générale* came from the press. It was very well received and was soon translated into English, German, and Italian. Two years

later another book, *Elémens de chimie médicale*, further illustrated his unusual gifts of coordinating and clearly presenting a subject.[2] After teaching at l'Athénée from 1817, in 1819 Orfila was appointed to the chair of legal medicine at the medical faculty at Paris. This he held until 1822 when a political shake-up resulted in the reorganization of the faculty with Orfila in the newly created chair of medical chemistry which he held for thirty years until his death.

In 1831 Orfila approached the height of his academic career when he was chosen to be the dean of the medical faculty of Paris. In this position he fulfilled very capably the duties of administrator and teacher, and he was soon recognized to be one of the leaders of French medicine. King Louis-Philippe selected him to sit in the Conseil Supérieur of public instruction, where he succeeded in accomplishing several reforms in medical education. As dean, he improved the Faculté de Médecine materially by erecting a new clinic and dissecting rooms, by creating a botanical garden at the Luxembourg, and by opening the Dupuytren museum of pathological anatomy. Later Orfila personally donated funds for the creation of the museum of comparative anatomy which bears his name. Generally, he seems to have been a vigorous and able administrator, anxious to discard outmoded institutions, and untiring in his efforts to create new ones.

Orfila wrote the letter that we possess to M. de Salvandy, the minister of education, on May 21, 1847 after he had been dean for sixteen years. In it he defends himself as an old and faithful servant of the government against what he considered the too severe censure of Salvandy, which had been directed to him through official channels. He upholds his position in the University and his dignity as an individual. The background of the entire matter is connected with a proposed law to reform the instruction and practice of medicine and pharmacy which had recently been presented to the Chambre des Pairs by Salvandy.

The medical profession and the medical schools of France were still subject to a law which had been decreed by Napoleon in 1803. Prepared in a time of emergency to remedy a chaotic situation, this

[2] Besides numerous papers his other chief works were *Secours à donner aux personnes asphyxiées ou empoisonnées*, 1818; *Leçons de médecine légale*, 1823-1825; *Traité des exhumations juridiques*, 1830.

old law necessarily contained many provisions which were no longer necessary, and at various times unsuccessful attempts had been made to change it. In the 1840's the question became acute. In 1845 Orfila wrote out an outline for reform which among other changes would abolish such institutions as the " officiers de santé," medical people with no other qualifications than that they had worked for six months with a physician.[3] They were no longer necessary now that facilities were available for complete medical training. In November 1845 a congress of physicians was held to determine what reforms they desired. Finally, on February 15, 1847 Salvandy, the minister of education, presented his " Projet de loi sur l'enseignement et l'exercice de la médecine et sur l'enseignement de la pharmacie " to the Chambre des Pairs.[4] Then the storm broke. The medical profession and faculties were shocked to find that their recommendations had been scarcely heeded. Whereas in the medical congress of 1845 Salvandy had expressed his complete sympathy with the recommendations of the profession, now the projected law sacrificed many of the liberties and rights of the profession to the ministerial power.[5] Orfila, among others, was strong in his disapproval, and he declined the mission which was offered him to defend the project in the Chambre as a commissary of the king.[6]

Our letter shows that Orfila himself had been accused by some of having been responsible for sections of the proposed law, and in order to defend himself he had published a letter to his critics.

[3] Ministère de l'Instruction Publique, des Beaux-Arts et des Cultes. Enquêtes et Documents relatifs à l'Enseignement Supérieur. LVII. *Médecine et Pharmacie.* Projets de lois recueillis et publiés par A. de Beauchamp. 1847-1848. Paris, Imprimerie Nationale, 1895, pp. 599-604. That Orfila was interested in drawing up a new law as early as 1836 is seen in his defensive note " M. Orfila à ses confrères," *Archives Générales de Médecine*, 4e Série, Tome V, Paris, 1844, pp. 237-248.

[4] Ministère de l'Instruction Publique, des Beaux-Arts et des Cultes. Enquêtes et Documents relatifs à l'Enseignement Supérieur. XLIX. *Médecine et Pharmacie.* Projets de lois recueillis et publiés par A. de Beauchamp. 1842-1848. Paris, Imprimerie Nationale, 1894, pp. 299-356. The text of the law may also be found in Louis Liard, *L'Enseignement Supérieur en France, 1789-1893*, Tome Second, Paris, 1894, pp. 433-447; or in *Journal de Médecine et de Chirurgie*, Paris, 1847, T. 18, pp. 140-144.

[5] Cf. the discussion of this law in *Revue Médico-Chirurgicale de Paris*, ed. by Malgaigne, 1847, Vol. I, pp. 183-185.

[6] *Ibid.*, p. 184.

Salvandy reprimanded Orfila for publishing the letter, whereupon Orfila composed his answer for his actions which we are reprinting. One feels that in this letter he is defending the very freedom of expression and action for himself against the ministerial power that the entire medical profession was defending by opposing the new law.

Eventually, however, nothing came of any of the controversy. The proposed law, after having been passed by the Chambre des Pairs in July, 1847 in a greatly changed form, and having been presented in still another form to the Chambre des Députés in January, 1848, was dropped completely after the Revolution of February, 1848. With the exception of minor changes the original law of 1803 stood until 1892 when a new one was enacted.[7] In the Revolution both Salvandy and Orfila were removed from office, but Orfila continued as professor of chemistry until his death on March 12, 1853.

Orfila's letter to Salvandy is written in a tiny handwriting on official stationery bearing the heading Conseil Royal—Université de France. The question has been raised that since it is addressed to the minister of education and would presumably be incorporated into the official files of the minister's office, how did it come to be on the autograph market? As it bears no stamp of having been received in a government office, it may possibly be a draft of a letter which was never sent, or it may have been sent to Salvandy personally and was not incorporated with the official correspondence. The fact that it is of a personal nature would tend to strengthen this latter view.[8]

UNIVERSITÉ DE FRANCE

Conseil Royal — Paris, le 21 Mai 1847.

A Monsieur le Ministre de l'instruction publique
Monsieur le Ministre

Dans la lettre que vous m'avez fait l'honneur de m'écrire avanthier, vous voulez bien apprécier avec la plus flatteuse bienveillance pour moi, les services que j'ai pû rendre à l'Université depuis bientôt 29 ans. Je ne saurais assez vous exprimer ma reconnaissance et vous

[7] Liard, *op. cit.*

[8] I am greatly indebted to Dr. Erwin H. Ackerknecht for checking the French transcription and for several valuable suggestions.

dire combien j'ai été sensible à une pareille appréciation. Les termes dont vous vous servez, à l'occasion de ces services, pour ne pas accepter la double démission [9] que je vous ai donnée, ne peuvent qu'augmenter ma gratitude.

Mais, Monsieur le Ministre, le blâme sévère que vous aviez déversé sur moi, par votre lettre du 17 de ce mois, loin de se trouver atténué par vos nouvelles observations reçoit une nouvelle force de la phrase dans laquelle vous dites " que vous n'auriez pas eu la pénible nécessité de me réprimander, si, avant de publier ma lettre,[10] j'en avais conféré avec vous."

Vous comprendrez, Monsieur le Ministre, la facheuse impression que je dois ressentir de l'acte qui me porte à faire un appel à votre justice, lorsque vous connaitrez la manière dont j'envisage vos attributions et mes devoirs.

Je sais que vous avez et que vous devez avoir le droit de faire des observations à vos subordonnés; personne plus que moi ne respecte la hiérarchie; mais il me semble, Monsieur le Ministre, que la sévérité de ces observations ne doit pas être toujours la même, et qu'elle doit varier suivant la culpabilité et la position des fonctionnaires qui en sont l'objet; ainsi dans l'espèce, j'aurais pû croire qu'à raison de mon age et du zèle, sans exemple, que j'ai déployé depuis que je sers l'état, vous auriez modéré les termes de la réprimande, sans en donner communication aux bureaux, si vous pensiez que j'avais commis une légère faute, ce que je ne saurais admettre.

En effet, je maintiens, Monsieur le Ministre, que je n'ai manqué à aucun de mes devoirs. Comment, à la commission des hautes études [11] je combats un certain nombre de dispositions du projet, et constamment la majorité adopte mes idées; plus tard, lorsque

[9] It is possible that Orfila offered his resignation as dean of the medical faculty and as professor of chemistry.

[10] A search through a few periodicals of the time has failed to reveal this publication. It could probably be found, however, if all the contemporary Paris journals and newspapers were available.

[11] On November 18, 1845, Salvandy appointed a Haute Commission des Études Médicales with Orfila as president. This Commission met from December 1845 to January 1846 in 19 sessions and discussed changes in the law of medical education. For the proceedings of these sessions see A. de Beauchamp, *op. cit.*, 1842-1848, pp. 6-298.

vous me faites l'honneur de demander mon avis sur ce projet, je réitère mes objections *par écrit* sur les articles que j'avais combattus et que je trouvais inscrits dans ce même projet; dans plusieurs entretiens que j'ai eus avec vous, je persiste dans mes opinions et je ne vous cache pas tout le mécontentement que susciteront les dits articles; à deux reprises, je cherche à faire comprendre à la commission de la Chambre des Pairs tout ce qu'il y a de facheux, suivant moi, dans les dispositions précitées, et au moment où je m'y attends le moins, plusieurs journaux, mes confrères et mes élèves m'accusent d'avoir fait insérer dans le projet, précisément les articles contre lesquels je m'étais constamment élevé. Il fallait donc, Monsieur le Ministre me laisser accabler avec la plus grande injustice? Cela n'était pas possible: mû avant tout par l'impérieuse nécessité de conserver ma dignité d'homme, et ne pouvant pas supposer, comme vous le dites dans votre première lettre, que mes idées ne m'appartenaient pas, j'ai cédé à un sentiment que je crois honorable, en fesant une démarche que je ne saurais regretter. Ce serait acheter trop cher, suivant moi, l'honneur d'appartenir à un corps éminent que d'abdiquer ainsi, jusqu'aux dernières traces de son indépendance.

Je n'insisterai pas d'avantage, Monsieur le Ministre, sur cette triste affaire; vous savez maintenant tout le chagrin qu'elle me fait éprouver; ce chagrin est tel, qu'il anéantit toute la satisfaction que pouvaient me faire ressentir les souvenirs de quelques bons et loyaux services, et qu'il me laisse peu d'espoir de gouter à l'avenir le plaisir que je pourrais avoir à en rendre d'autres. Toutefois, il ne me rendra jamais injuste à votre égard, et vous me verrez toujours le premier, applaudir à tant d'actes utiles de votre administration si active, et proclamer en tout lieu l'extrême bienveillance de vos rapports avec les fonctionnaires de l'Université, et dont vous m'avez toujours honoré.

Je suis avec respect, Monsieur le Ministre,
votre très humble et très obéissant serviteur

ORFILA

APHASIA AS DESCRIBED BY LINNAEUS AND AS PAINTED BY RIBERA

HENRY R. VIETS

Among the medical works of Linnaeus is an early description of aphasia, the first, so far as I have been able to ascertain, to clearly set forth the classical symptom of knowing what one wishes to say, but being unable to say it. Called " forgetfulness " by Linnaeus, his patient understood both spoken and written language. Linnaeus does not mention whether agraphia was present but he does recognize that the " impairment of memory " was " of a quite rare kind."

As the paper was published in a somewhat rare journal and as it has not been found in an English translation, Linné's article seems worthy of reprinting. I am indebted to the Natural History Society of Boston for the journal reference and to Dr. Carl Ernlund for the translation.

In connection with the word description of Linnaeus, in 1745, attention is called to a pictorial representation of aphasia by the Spanish artist, Jose Ribera (1588-1656) of the previous century. The portrait is of a beggar-boy, with a right hemiplegia, carrying a written appeal in his left hand, " Give me alms, for the love of God." His intelligent expression, broad brow and twinkling eyes would tend to exclude the diagnosis of idiocy. In the writer's opinion, aphasia is probably depicted. The picture is in the La Caze Collection, in the Louvre, Paris. It goes under the name of Le Pied Bot, the club-foot, but the boy's affliction involved more than his right foot. The right arm is certainly affected; the right side of the face is probably weakened and the paper in his hand can only call attention to his inability to speak.

FORGETFULNESS OF ALL NOUNS AND ESPECIALLY PROPER NAMES

BY

C. LINNAEUS *

A learned man in Upsala, who owing to many years' sedentariness had become corpulent and full of scurvy, finally developed podagra.

* Linnaeus, C. Glömska af alla Substantiva och i synnerhet namn. K. Swenska Wetensk. Acad. Handl. Stockholm. 6: 116-117, 1745.

The podagra manifested itself in the spring and autumn in the feet, but was very disinclined to remain there, endeavouring to find its way into the body, for which the patient sought medical aid.

1742. In the autumn this same man got his usual passion, when it was inclined to affect not only his feet but also finally spread up into the head itself. I strove in vain to drive it from there, no matter what I prescribed, and the patient instead got a sleeping-sickness (Cataphora), which caused me great trouble, a Spanish fly applied to the back of the neck, however, had the greatest effect, for after that he became more awake, but seemed to wander in his mind, yet it was not so, rather he spoke, as it were, a foreign language, having his own names for all words, e. g. to drink, To Ti, etc.

After the sleeping-sickness and the podagra together with the passion had disappeared, so that he was able to get up, he felt some stings in the back of the neck with some stiffness of the occipital sinews along with an impairment of memory, which was, however, of a quite rare kind.

He had forgotten all nouns, so that he was unable to remember a single one: indeed not even the names of his children of his wife or his own name much less that of anybody else. And what was more remarkable was that if one mentioned anything he wanted to say, he said " yes "; but if he was told to repeat it, he answered " cannot "; when he saw anybody's name, he knew who it was, and when he wanted to mention the name of any of his colleagues, he pointed to the " Catalogum Lectionum " in which the name was found.

Thus he had lost two things; firstly the memory of all nouns, and secondly the ability to express nouns.

This continued from Christmas-time till the spring of 1743, when the forgetfulness suddenly disappeared, but it was not long before he was afflicted with podagra in the body, which shortly afterwards brought him to the grave.

Le Pied Bot, by Jose Ribera (1588-1656), Louvre, Paris.

KONGL. SWENSKA WETENSKAPS ACADEMIENS HANDLINGAR,

För Månaderne
Aprilis, Majus och Junius,
1745.
Vol: VI.

Med Academiens *tilstånd*,

Tryckte i Stockholm hos LORENTZ LUDWIG GREFING, på des egen bekostnad.

GLÖMSKA af alla Subſtantiva och i ſynnerhet namn.

Af

C. LINNÆUS.

En Lärd Man i Upſala, ſom genom flere åhrs ſtillaſittande blifvit corpulent och full af Skörbiug, ſtannade ånteligen uti Podager.

Podagren viſte ſig våhr och höſt uti fötterna, men ville mycket nödigt blifva der quar, utan ſökte komma upp i kroppen, hvar emot Patienten anlitte Medicorum biſtånd.

1742. Om höſten fick ſamma Man ſin vanliga Paſſion, då hon ville mycket nödigt til fötterne, utan ſlog ånteligen til fielſva hufvudet. Jag befliſade mig förgåfves at få henne dådan, hvad hälſt jag ordinerade, utan fick Patienten en ſömnſiuka (Cataphora) hvilken ſatte mig mycken móda, hvar vid en Spanſk fluga i nacken, doch giorde ſtörſta effecten, ty efter denna vaknade han mera upp, men tyckte likſom phantiſera, det doch ſå ei hade ſig, utan talade han likſom ett främmande ſpråk, hafvandes egna namn på alla ord: ex. gr. dricka *To Ti* &c.

Sedan ſömnſiukan och Podagren med paſſionen bortvikit, at han förmådde gå upp, kände han några ſtyng bak i nacken med någon ſtyfhet i nakſenorne, och dår til en ſvårighet med minnet, ſom doch var på helt ſällſamt ſått.

Han

Han hade förgåtit alla Subſtantiva, ſå at han ej mindes et enda; ja ej engång namnet på ſina barn, på ſin Fru eller på ſig ſielf, mycket mindre på någon annan. Och det ån mehr ſynnerligit var, om man nämnade någon ſom han ville ſåga, ſade han ja; men då man bad honom ſåga efter, ſvarade han *kan intet*, når han ſåg någons namn viſte han hvem det var, och då han ville nämna någon af ſina collegas, pekade han på Catalogum Lectionum dår hans namn ſtod.

Altſå hade han miſtat 2. ting; förſt minnet af alla Subſtantiva, och för det andra mackten at kunna nämna Subſtantiva.

Detta höll ſå ifrån Juhl-tiden til våren 1743, då denna glömſka haſtigt förſvan, men varade ej länge för ån han blef anſatt af Podagren i lifvet, ſom ej längt derefter lade honom i graſven.

ANMÄRCKNINGAR

Öfver Gull-Gångarne vid Ådelfors, i Småland, Jönköpings-Lån, Öſtra Härad och Alsheda Paſtorat

af

ANTON SWAB.

§. 1. Det år bekant, at ett Gull-Spor finnes i måſtedels alla, både in-och utrikes Silfver-

NOTES AND COMMENTS

PRIMITIVE AUTOPSIES AND THE HISTORY OF ANATOMY

E. H. ACKERKNECHT

It is a well known fact that the anatomico-physiological knowledge of primitives is extremely scanty. As a matter of fact it is much more scanty than their knowledge in other technical or "scientific" branches.[1] They may recognize and name an organ, but most of the time neither an inkling of its real function nor of its regular occurrence and position enter their mind. Suffice it here to remind our reader of two significant observations: many primitives are even unaware of the causal relations between sexual act and pregnancy[2] and of the specific function of the sexual organs, even when castrating animals at the same time for taming and fettering. Primitives place the vital principle ("soul," "intelligence," etc.) in such different and altogether rather irrelevant places as the stomach,[3] the kidney fat,[4] the larynx,[5] the pelvis,[6] or even the great toe.[7] Even when

[1] Browne, C. A., The Chemical Industries of the American Aborigines, *Isis*, XXIII, pp. 406-424.

[2] This fact and the strange anatomical representations of primitives were much emphasized by the late B. Malinowski concerning the Trobriands, e. g. in his *The Father in Primitive Psychology*, New York, 1927. For an analysis of the conception problem see Ashley-Montagu, M. F., *Coming into being among the Australian aborigines*, New York, 1938. See also Nieuwenhuis, A. W., Die Ursprünglichsten Ansichten über das Geschlechtsleben des Menschen, *Janus*, 1928, pp. 289 ff., for a good survey of this problem among Australians, Malays, etc., and interesting observations concerning the absence of anatomical knowledge among the Dajaks of Middle Borneo. For misinterpretation of the role of the uterus and other anatomical errors among the Thongas see Junod, H. A., *The Life of a South African Tribe*, London, 1913, vol. II, p. 332.

[3] Trobriands and Dobuans, see Fortune, R., *Sorcerers of Dobu*, New York, 1932, p. 148.

[4] Brough-Smyth, R., *The Aborigines of Victoria*, London-Melbourne, 1878, vol. II, p. 289.

[5] Ellis, A. B., *The Yoruba Speaking Tribes of the Slave Coast*, London, 1894, p. 126.

[6] Herskovits, M. J., *Dahomey*, New York, 1938, vol. II, p. 237.

[7] Sumner, W. G., and Keller, A. G., *The Science of Society*, New Haven, 1927, vol. 2, p. 817.

more correctly the head is chosen as seat of the " soul," it is generally done for quite " unrealistic," "unscientific," mystical reasons.[8]

We derive our anatomical knowledge from dissections. Primitives generally are very much afraid of dissections [9] and do not dissect. They abstain from dissections for the same mystical reasons (fear of having to live mutilated in the world of the dead, fear of becoming ritually unclean, etc.) which hinder them also from developing any considerable active surgery in spite of great manual skill.[10] Thus without a detailed analysis the conclusion would seem rather obvious and well founded that their lack of anatomical knowledge is simply a consequence of the absence of dissections.

The argument that hunting and its variation, cannibalism, could replace dissection for gaining anatomical knowledge is convincingly dismissed by Olbrechts who gives in addition a very vivid picture of the anatomical ignorance of the Cherokee medicine men (who, at the same time, have such a rich knowledge of drugs). " The hunter who cuts up the game in the forest to bring home the better morsels is not engrossed in anatomical speculation and his wife who disembowels the rabbit or the groundhog is too anxious to have the meat barbecuing before the fire to be able to afford the time for scientific observations." [11] Similarly human or animal dissection for such entirely different purposes as sacrifice or divining are not prone to further anatomical studies, and as a matter of fact have not done so in the overwhelming majority of cases.

Relevant for our problem and worthwhile to be analyzed are the very rare cases where primitives really dissect for medical purposes: to find out the seat of diease. We were only able to collect three such cases in the whole literature.[12]

[8] Ackerknecht, E. H., Origin and Distribution of Skull Cults, *Ciba Symposia*, 1943, in print.

[9] Junod, *l. c.*, II, p. 332.

[10] Junod, *l. c.*, II, p. 418; Harley, G. W., *Native African Medicine*, Cambridge, Mass., 1941, p. 74; Johnston, James, *Reality versus Romance in South Central Africa*, New York, 1893, p. 335; Lévy-Brühl, L., *L'âme primitive*, Paris, 1927, p. 400. In primitive societies the same reasons also make of body mutilations a terrible punishment for criminals and a humiliating form of vengeance on the enemy.

[11] Olbrechts, F. H., and Mooney, J., *The Swimmer Manuscript*, Washington, 1932, p. 90.

[12] There may be some more such cases as the remarks of Marrett (*Psychology*

One of the earliest reports of primitive autopsies is found in G. Turner's classic on *Samoa*:[13]

> If the person had died of a complaint which carried off some other members of the family they would probably open the body to 'search for the disease.' Any inflamed substance they happened to find they took away and burned, thinking that this would prevent any other members of the family being affected with the same disease.

Forty years later Margaret Mead observed the very same custom[14] as well as the much more widespread cutting out of the fetus from the corpse of a pregnant woman,[15] both customs being apparently unchanged.[16]

In a very different natural and cultural setting, among the *Chukchees of North-Eastern Siberia*, it is part of the mourning ceremonial to rip the body of the deceased and to see from the state of the organs whether he has died from sorcery or the attack of bad spirits (Kelets). These Kelets seem to be especially fond of attack-

and Folklore, London, 1920, p. 210) and Malinowski (*l. c.*, p. 20) suggest, but altogether they cannot be very numerous. Dissections, identical in all their implications with those described below are also mentioned for the Mapuches in E. A. R. Smith, *The Araucanos*, New York, 1855.

[13] Turner, G., *Samoa a Hundred Years Ago*, London, 1884, p. 145. See also Ella, S., *Australas. Soc. Advanc. Science*, 1892, p. 639.

[14] Mead, M., *Coming of Age in Samoa*, New York, 1924, p. 134.

[15] Mead, *l. c.*, p. 133, p. 156. The sense of the operation is a mystical one—avoiding of bad actions of the fetus' ghost. Junod describes the same custom for the Thongas (*l. c.*, II, p. 332) and is startled by their simultaneous ignorance of anatomy. Concerning the distribution and the later rationalizations of postmortal sectio Caesarea see MacKenzie, D., *The Infancy of Medicine*, London, 1927, p. 333, and Ploss-Bartels, *Das Weib*, Leipzig, 1895, vol. II, p. 291.

[16] It is of great general importance that these customs seemed *unchanged*; no change, neither of the form nor of the content of the ceremony, had occurred. Dr. Mead was kind enough to confirm this statement for me. This is rather surprising when we realize what transformations and influences Samoa has undergone during these 40 years in general culture as well as in the medical field (see e. g. Keesing, F. M., *Modern Samoa*, London, 1934, pp. 375 ff.). Dr. Mead in a personal communication makes the following pertinent remarks on Samoan medicine: "In spite of the attitude towards the supernatural in Samoa, the Samoans were exceedingly unreceptive to any form of European rational medicine. . . . It had not occurred to me before but I am inclined to think that perhaps mildly rational medicine may be more resistive than definitely supernatural. People who are accustomed to shop around among religious practitioners often add the doctor without resistance."

ing the liver.[17] Similar customs are reported from the neighboring Koryaks.[18]

Undoubtedly the most extensive area of primitive autopsies is found in *Western Equatorial Africa.* Following Hermann Baumann, who has given a rather complete survey of the custom among 42 tribes in the *Zeitschrift für Ethnologie,* Berlin, 1929, pp. 73-85, we would like to call this area the "*Likundu*" area. Likundu is a widespread Lingala word which is used for the magic force which is sought for in these autopsies.[19] The area covers, roughly speaking, the region from Cameroon in the north, to the lower Congo in the south, and goes as far east as the Bahr el Ghazal.[20] Autopsies are performed on persons who are suspected either to have been sorcerers themselves or to have been killed by sorcery. It is thought that both facts would become visible by alterations in the organs, changed organs representing either the magic force of the born sorcerer or the destruction caused by his magic in the victim. They look for hyperemia or anemia of the organs, tumors, stones, especially of the gall bladder, ulcers, quality of the gall, enlarged spleens, stomachs, etc. Perfectly normal organs as the uterus and ovaries may be regarded as pathological "witch-tumors."[21] The technical procedure generally consists of a longitudinal incision in the middle of the chest and abdomen. The "pathological" parts are cut out, buried apart or destroyed, or used as medicine in the form of powders.

When we now compare these three sets of autopsies, the magical background seems fairly common to all of them. In spite of a quasi rational opening and examining of the body the goal of the examination is quite different from our search of diseased organs. One should suppose that these autopsies performed through centuries have nevertheless had some positive consequences on the anatomical or pathological knowledge of these tribes. But there is the interest-

[17] Bogaras, W., *The Chukchee,* Leiden-New York, 1904-1909, pp. 258, 527. Iden-Zeller, O., *Zschr. f. Ethn.,* Berlin, 1911, p. 855.

[18] Jochelson, W., *The Koryak,* Leiden-New York, 1907, p. 130.

[19] See also Evans-Pritchard, E. E., *Witchcraft, Oracles and Magic among the Azande,* Oxford, 1937, Chapter II, "Witchcraft substance is revealed by autopsy."

[20] The remarks of Harley (*l. c.,* p. 23) concerning the Manos of Liberia suggest still other African centers of the custom outside this area.

[21] Yaunde; see Nekes, *Kolon. Rundschau,* 1913, pp. 134-143.

ing fact that *not only nowhere is such better knowledge reported, but there is, in some cases, positive evidence of an extremely bad anatomical knowledge among these dissectors.* We have already mentioned the appreciation of uterus and ovaries as "pathological" growths with the Yaunde. There is a report of Pechuel-Lösche [22] concerning the dissecting Bawili of Loango who describe "a bundle of threads near the vertebral column of sorcerers." When these threads are pulled the corpse moves the ears or twinkles! There is the evaluation of the normal appendix equally as a pathological growth, particularly to sorcerers,[23] among the Azande. These dissectors are a nice example of what Jonathan Wright called "the blindness to nature in the interest of art, of the ideal, of religion exhibited in primitive civilization." [24] It becomes evident that the mere technique means nothing for scientific progress as long as it is not pervaded by the scientific spirit. With this spirit the opening of bodies is an inexhaustible source of anatomical knowledge. Without it, in the atmosphere of magic, it is a gesture of no importance for knowledge because the essential element for the formation of scientific knowledge is missing. *Only in the context of a culture pattern oriented towards a kind of "science," do dissections furnish anatomical knowledge.*[24a] Then even hunting or sacrificing may provide such knowledge. In other, for instance magically orientated, culture patterns dissections may have any other meaning but the increase of anatomical knowledge. Our observations are an empirical corroboration of the ideas of Daniel Essertier who opposed to the Frazerian speculations of gradual growth from magic to science the idea that magic even in its most progressed stages can never engender but pseudo sciences and that a revolutionary transformation of the spiritual approach is necessary to bridge the cleft between magic and science.[25]

But in this little essay we are more concerned with the bearing of our examples on medical history than with its anthropological con-

[22] Pechuel-Lösche, *Volkskunde von Loango*, Stuttgart, 1907, p. 337.
[23] Gayer-Anderson, IV, *Rep. Wellcome Trop. Res. Lab.*, vol. B, p. 253, 1911.
[24] *Med. Life*, 1925, p. 183.
[24a] For the general theoretical implications of this statement see Ruth Benedict, *Patterns of Culture*, New York, 1934, pp. 46, 244.
[25] *Les formes inférieures de l'explication*, Paris, 1927.

nections. The fundamental importance of the renaissance of anatomy in the 16th century for the great adventure of modern medicine which is still going on, has rightly been stressed [26] and can hardly be overestimated. The simultaneity of the renaissance of anatomy and a freer and larger use of human dissection has not been overlooked; rather has this more technical point been taken by us children of a technical age and under the influence of certain general theories to be the essential cause.[27] In the light of our study of primitive autopsies this seems to be rather an error. Without falling in premature generalizations concerning the role of the technical element in all places and all times, it may at least be safely stated that its role in the history of anatomy is quite secondary. To understand fully the development of modern anatomy our interest should be concentrated rather on the fundamental cultural and spiritual implications and orientations than on secondary technical problems.

[26] Sigerist, H. E., *Man and Medicine*, New York, 1932, p. 8. Idem, Die Geburt der Anatomie, *Essays on the History of Medicine presented to K. Sudhoff*, Zürich, 1924, pp. 194-200. Sigerist states here concerning Babylonian "anatomy": "A people that was able to represent the finest movements of the animal, that was accustomed to observe the smallest variations of the animal liver, would also have been able to unveil the secrets of the organism to a certain degree—*if it had felt the urge to do so.* Religious restraints would have been overcome if the anatomical urge had been present. Vesalius took bones from the gallows."

[27] Fortunately I do not need to discuss here the motes in my brothers' eyes, having produced once myself a little beam; *Arch. f. Gesch. d. Med.*, 1932, p. 155.

A REVIEW OF THE CRAWFORD W. LONG CENTENNIAL ANNIVERSARY CELEBRATIONS

HOWARD R. RAPER

March 30, 1942, was the one hundredth anniversary of Dr. Crawford W. Long's first use of ether in surgery. The event was duly celebrated in numerous ways. Many articles were published in various magazines and newspapers, a play was written and produced in Atlanta by the Atlanta Theater Guild, people gathered and listened to speeches in Danielsville, Jefferson and Athens, canny merchants paid for large advertisements in Georgian newspapers.

Consideration of one of the advertisements will serve to indicate the general tenor of the celebrations. It occupied an entire page of Atlanta's famous old newspaper, *The Constitution*, and was illustrated with a large halftone captioned: " Maurice Seigler's painting of Dr. Long's introduction of anesthesia—March 30th, 1842."

Long's supporters are becoming bolder and less scrupulous. Even his most ardent advocates of the past never said pointblank that he *introduced* anesthesia. They said only that " he was first to use ether anesthesia in surgery," leaving it to the reader or listener to assume that he must then have introduced it into medical practice. Although Dr. Long used ether in surgery in 1842 (two years before Wells used nitrous oxide, four years before Morton gave his famous ether demonstration at Boston), he apparently did not perceive its significance or even sense its possibilities. His actions, or his lack of action, would indicate that he attached no more importance to the event than if he had used whiskey to prepare his patient—a practice then common among physicians and dentists. Dr. Long did not report his use of ether until three years after Morton had introduced it into surgical practice.

Built on the declaration that Dr. Long *introduced* anesthesia the advertisement in *The Constitution* reads as follows:

DR. CRAWFORD W. LONG

Won a Fight For Our American Ideals!

His was a Fight for Freedom—for a world ruled by superstition, ignorance, physical oppression! Ours is that Fight for FREEDOM!

His was a Fight for Mercy—to relieve the needless pain and suffering of mankind through the ages! Ours is that Fight for MERCY!

His was a Fight for Truth—for knowledge which saved lives, built stronger and braver men! Ours is that Fight for TRUTH!

His was a Fight for Courage—braving the censure of his profession, the scorn of fellow men! Ours is that Fight of COURAGE!

His was an American's Fight for Victory—for the same ideals and principles we fight to preserve today! His was a fight of determination . . . overcoming all obstacles, sacrificing all personal gain, receiving no reward other than the eternal recognition of a genuinely grateful world.

Today, on the 100th anniversary of Crawford Long's first triumph over pain, we pay tribute to the memory of a once-obscure Georgian. The triumph is humanity's! The heritage is ours! The challenge of the past and such illustrious forebears inspires us even now—to fight courageously, to win a final VICTORY FOR OUR IDEALS!

In view of the fact that Dr. Long made no fight for freedom, mercy, truth, ideals (so far as anesthesia is concerned at least), that he did not brave the censure of his profession or the scorn of his fellow men, that he overcame no obstacles to introduce anesthesia and did not introduce it, and that he made no personal sacrifices on behalf of anesthesia, this advertisement is a triumph of uncontrolled, or perhaps pumped up hysteria. At any rate it is indicative of the ardent feeling many Georgians have for their hero. Hitching such blather to such a serious thing as the war seems particularly unfortunate.

II

The Long legend is growing. It becomes more persuasive, but less truthful. Early accounts were woefully lacking in details. Readers of these accounts were left in semidarkness as to the precise nature of the events leading to Dr. Long's first use of ether and the exact circumstances surrounding his experiment. Time, imagination and piracy—not research—are correcting these deficiencies.

One bit of piracy that seems particularly objectionable is the bloody shins episode, which was lifted bodily from Wells's authentic story and used arbitrarily, without authentic justification, by the Atlanta Theater Guild in their play. Such things must of course be expected from authors more intent on producing drama—and pleasing a local audience—than on preserving history. It does seem a shame, however, not only to seek to take credit away from Wells, but also to appropriate his story to assist in accomplishing that end. It is a sort o' case of using the eagle's own feathers to make an arrow to shoot the eagle.

Dr. Long himself says only that he found bruised and painful spots on his person following ether parties and that he noticed falls and blows seemed to cause his friends no pain while they were under the influence of ether. Perhaps he observed also that the same thing may occur to friends under the influence of alcohol. No specific instance of such manifestations is mentioned or described. It is all a little vague and a bit strange that there should have been so much bruising and falling as Dr. Long seems to imply.

In his review of the play published in the *Southern Surgeon*, Frank K. Boland, M. D., wrote: "Crawford Long administers the drug himself, and does not allow the patient to do it as some of his detractors would have us believe."

It is less dramatic for the patient to administer the drug to himself, but I cannot see that it belittles Dr. Long to believe that he did. Dr. Long, himself, says: "The patient continued to inhale ether during the time of the operation. . . ." Obviously Dr. Long could not have been operating and administering ether at the same time.

James Venable, the patient, says: "I commenced inhaling ether before the operation was commenced and continued it until the operation was over." Speaking of the second operation on him, Mr. Venable says he felt a little pain as "the last cut was made," and then goes on to explain that: "In this operation I stopped inhaling the ether before the operation was over."

Dr. Long undoubtedly administered ether to other patients himself, but there is good reason for believing that he allowed James Venable, who was accustomed to inhaling ether, to administer it to himself. And one should be allowed this opinion without being branded a

Long detractor. I mention the matter to indicate how touchy and fussy Long advocates can be sometimes.

One way of looking at it, Long advocates should be especially willing to admit that Venable administered the ether to himself. It affords them an opportunity they have thus far overlooked. They could claim "another first" for Dr. Long—the first to employ self-administered analgesia.

Nor is there any sly slander of Dr. Long in the use of the word analgesia. Anyone with a taste for the truth will admit that none of the pioneers in anesthesia got much further than analgesia at first. Moreover, analgesia is only a name for a degree of anesthesia. In short, I am not insinuating that Mr. Venable was not anesthetized.

III

The most amusing article printed during the celebrations appeared in the magazine section of the *Atlanta Journal*, March 22, 1942, under the title, "Another 'First' for Crawford W. Long." The author, Wyllie Folk St. John, starts her article with a bold: "Now it can be told."

What, I wondered, is there to tell about Dr. Long that has not already been told?

Mrs. St. John is a considerate writer. She did not keep me in suspense. She gave out the news at once that: "The first physician ever to dare use an anesthetic to lessen the pains of childbirth was Georgia's famous Dr. Crawford W. Long. . . ."

To anyone at all familiar with the history of anesthesia this is startling news. Sir James Y. Simpson has been universally accepted as the first to use anesthesia in childbirth for nearly a century. He used it January 19, 1847, and promptly published his report of the event in February. But according to this latest report from Georgia, Dr. Long used ether on his wife at the birth of their second child on December 27, 1845—thirteen months before Sir James.

It took Dr. Long over seven years to report his use of ether on James Venable—and that was a record of some sort. But it was nothing compared to this latest achievement in procrastination. This claim to having been first to use anesthesia in childbirth comes ninety-seven years late!

The story stems from a daughter of Dr. Long's named Mrs. Eugenia Long Harper, who told it to Dr. Frank K. Boland of Atlanta, who, in turn, passed it along to Mrs. St. John.

"The reason for the long delay in publishing Dr. Long's claim to this additional fame is the human interest part of this story," says Mrs. St. John. It is the human interest, the human frailty, and the unintentionally humorous part of the story.

At this point I challenge the reader to stop and try to imagine the reason for the long delay in making this additional claim for Dr. Long. It is doubtful if any imagination is powerful enough to anticipate it; so I may as well tell you. I quote from the article so you may be certain I am not joking:

> . . . The child born on this occasion was Mrs. Fanny Long Taylor, of Athens, the one of Dr. Long's children who did most to perpetuate his fame. BUT (*sic*) Mrs. Taylor was the one who insisted on keeping his priority in the matter of childbirth anesthesia a deep family secret—because if it came out it would reveal her age! Such is a woman's pride. Mrs. Harper told me (Dr. Boland) that they were all scared of Sister Fanny, who seems to have been the mainstay of the family after her father's death, but a very strong-minded woman. And only after Sister Fanny died did Mrs. Harper let it be known that Dr. Long started the hitherto unheard-of practice of relieving the pain of childbirth.

So there you have it. The reason for the century delay in publishing Dr. Long's claim to this additional fame is that Sister Fanny did not want people to know how old she was.

I wonder why Dr. Long never mentioned the matter. Did Sister Fanny, age four when he made his first report on his use of ether, have the old man bluffed even at that tender age? And was she already keeping her age secret?

I wonder why Sister Eugenia waited eleven years after Fanny's death before spilling the family secret to Dr. Boland. Did it take that long for the fear of Fanny to wear away?

I wonder why Dr. Long never gave ether to his wife for childbirth a second time. There were other children born after Fanny.

I wonder what the Long advocates will claim next. Wells, Morton, and now Simpson have all been assailed. Perhaps this is the climax, the end—and perhaps that is a vain hope. Georgia's enthusiasm is magnificent. It is too bad the cause is such a doubtful one.

IV

The best of the several Long anniversary articles to come to my attention appeared in the April (1942) issue of *Hygeia*, lay magazine of the American Medical Association. Title, "One Hundred Years of Anesthesia." Author, Logan Clendening, M. D.

It is no easy matter to celebrate the anniversary of a failure, and Long failed to take advantage of his opportunity. It is a little like celebrating a miscarriage, pretending it was a birthday. Dr. Clendening handles this difficult assignment about as well as it could be done. A less competent writer might have made a terrible mess of it. His article is of course cordial and complimentary to Dr. Long throughout, but he avoids nearly all the usual errors and nonsense characteristic of most of the articles written about Dr. Long. He even goes so far as to protect Wells and Morton against some of the nonsense.

Defining his own aim he says, "It is not necessary to discuss the controversy here; my intention in this article is only to observe the centennial anniversary by publishing some original material in my possession and to make known some information that has not been used except in some obscure pamphlets." Thus wise Dr. Clendening does his best to dodge the issue.

The Doctor's word of defense for Wells and Morton takes the following form. He quotes from a letter in which Dr. Long states that a dentist from Boston, Massachusetts, visited Jefferson in "1842, 3, or 4." Dr. Long then goes on to say, "I have always thought it possible the dentist was Morton or Wells and that a knowledge of the use of ether in surgical operations was obtained at that time."

Dr. Clendening spikes this nonsense as follows: "This suspicion of Dr. Long's is entirely unwarranted by the facts. There is no evidence that either Dr. Wells or Dr. Morton was in Jefferson from 1842 to 1844, and their time is quite thoroughly accounted for during that period. But it gives an indication of how heated the controversy became when as mild a man as Dr. Long could give credence to such duplicity."

The main content of Dr. Clendening's article seems to me to be above serious criticism. There are minor errors such as any author

writing on the subject—including H. R. Raper—might make. I spare the reader, Dr. Clendening and myself consideration of them.

I do, however, wish to point out that the end result, the final effect of the article on the casual reader is unfortunate in that it leads him to believe that it was Dr. Long who discovered anesthesia and delivered the gift to the race. And this *is* the final effect in spite of the fact that Dr. Clendening meticulously avoids making such an unwarranted claim in his article.

The title of the paper contributes to this misinterpretation—" One Hundred Years of Anesthesia." The unwary reader naturally supposes that anesthesia was *introduced* one hundred years ago by Dr. Long. There is no hint that *Dr. Long's* anesthesia started and *stopped* with Dr. Long, that he never introduced it to the race, and never even tried to do so.

An illustration under the misleading title serves to mislead the casual reader even more. A crude drawing depicts the scene of Dr. Long's first use of ether. Naturally an effort has been made to dramatize the event, but almost no effort was made to achieve historic accuracy. It is so apocryphal that the editor who gave it its caption apparently could not bring himself to label it specifically. The oblique caption reads: " The first surgical anesthetic was administered on March 30, 1842, in the village of Jefferson, Ga." The reader is left to come to his own conclusion that the illustration is a pictorial record of that event.

Besides portraying Dr. Long and his patient the picture includes *seven* witnesses of the experiment—a liberal portion of the male population of Jefferson at that time. Thus the event is made to appear to be a public exhibition of considerable proportions. One would naturally suppose that after such an event news of it would immediately spread to the four corners of the earth. We know that this did not happen, and those who are informed on the subject know that there were not more than three witnesses present.

The patient, Mr. Venable, mentions no witnesses in his account of the event. Long's daughter, Mrs. Taylor, names only three. Dr. Long himself, in his first published article (Dec. 1849), names one: Mr. Andrew J. Thurmond, and adds that two others, Mr. E. S. Rawls and Mr. Wm H. Thurmond, also " witnessed one or both operations " on Mr. Venable.

I interpret Dr. Long's manner of statement as indicating that by 1849, over seven years after the event, he could not remember with certainty just who may have been present at the first operation on Mr. Venable: that there may have been only one or as many as three. I have been able to locate the affidavit of only one witness (E. S. Rawls), who may have been present at the first operation; and it is impossible to know from what he says whether it was the first or second operation on Mr. Venable that he witnessed. Mr. Rawls and A. J. Thurmond were Mr. Venable's friends and fellow-students at Jefferson Academy. Dr. Clendening names another fellow-student, James E. Hayes, as one of the witnesses of the first operation, but he is mistaken. Mr. Hayes's affidavit states that he witnessed the second operation, not the first.

It is usually possible to locate more witnesses of an historic event than were actually present. When the University of Harvard Film Foundation made their movie of the discovery of anesthesia, their findings were such that they eliminated two witnesses from the scene of Morton's ether demonstration that had hitherto been included. Dr. P. A. Wilhite, who, for a time, laid claim to having assisted Dr. Long at his first operation on Mr. Venable, was eliminated by no less a person than Dr. Long. Dr. Wilhite showed signs of claiming the discovery himself.

While it is true that more witnesses than were actually present can usually be found, there is a notable exception to this general rule to be found in the story of the discovery of anesthesia. Far from being bothered with phoney witnesses, it is almost impossible to locate the names of the real ones who attended Wells's Boston demonstration. The reason is obvious: there could be no possible honor in having failed to grasp Wells's message and in booing him. Of the list of witnesses who were present at Wells's first experiment on himself, none have either been added or taken away.

In passing, there is one additional point I wish to make in connection with Dr. Long's testimony concerning witnesses. It is only a straw in the wind, but it is still another of many such straws. His memory, as we have seen, was very hazy as to the number of witnesses. Had he fully realized the great significance of the event at the time, as his advocates would have us believe, it is unlikely

that he would have forgotten about the witnesses; for witnesses are very important under such circumstances. If, on the other hand, he had attached little or no importance to the event—if he had looked upon ether as simply a novelty substitute for whiskey—he would have given no consideration to the matter of witnesses and so, later, would have had trouble remembering them. Taken alone, such a consideration proves nothing, but when fitted into the pattern of many similar things, it is strong evidence that Dr. Long did not grasp the significance of what he had done when he used ether.

In the course of his article, Dr. Clendening mentions Dr. W. Harry Archer and myself. He is not too nice to us. He seems to imply that because we are dentists our only interest in the history of anesthesia is based on a none too scrupulous desire to win dentistry credit for the discovery. He rather insinuates that, finding it impossible to challenge Dr. Long's priority, we have deliberately shifted the argument to a consideration of "who is most responsible for furthering the use of anesthesia in surgical practice."

Consideration of the subject from this angle is not new and it is certainly not an invention or a dodge of Archer's and mine.

Sir William Osler and William H. Welch, M. D., considered the matter from the same angle many years ago—and came to substantially the same conclusions arrived at by Archer and myself. Namely, that Dr. Long did not earn the title of discoverer.

I am certain that I detect in Dr. Clendening's article both the capacity and the desire to be truthful and fair. I feel sure his interest in the history of anesthesia is not limited simply to a selfish desire to win the profession of medicine the credit for the discovery. And if he will examine my own and Archer's record he will find that we too deserve to be given the benefit of a similar appraisal of our capacities and motives.

Dr. Clendening would, I dare say, be pleased to know that credit for the great discovery belongs to medicine, but he evidently finds Dr. Long's case too poor a one to make a forthright claim to the honor on his record. As for Archer and myself—I feel certain I can speak for both of us—we would indeed like to see dentistry have the credit for the discovery of anesthesia, for we honestly believe there is where the credit belongs; and our case is good enough so that

we need not hesitate to say so quite frankly, knowing that we do not lay ourselves open to justifiable attack by so doing.

Speaking of priority, as we were a moment ago, I wish to point out that neither Archer nor I have ever questioned Long's claim to it. It has been questioned recently, however, by Thomas E. Keys, reference librarian of the Mayo Clinic, in his excellent series of articles running currently in *Anesthesiology,* Journal of the American Society of Anesthetists, under the title, " The Development of Anesthesia." I quote from the September, 1941, installment of this series:

" Sometime during the year 1839, according to Lyman, William E. Clarke, a young student of chemistry in Rochester, New York, was in the habit of entertaining his companions with inhalations of ether. While a student at Berkshire Medical College in 1841 and 1842 Clarke continued his 'ether entertainments.' Presumably because of these experiences, in January, 1842, having returned to Rochester, he administerd ether from a towel to a young woman named Miss Hobbie, and one of her teeth was then extracted without pain by a dentist, Dr. Elijah Pope. This would appear to be the first use of ether anesthesia on record; it antedates what is presently known of the work of Long by at least two months."

This challenge to Dr. Long's priority, it should be noted, comes not from dentistry but from a professional librarian and historian. My own personal reaction to it is that it is simply a matter of academic interest. If bare priority, unsupported by other vital considerations, seemed of minor importance when Dr. Long claimed it, it still seems so when the credit is shifted to other claimants. Blind priority, lacking the comprehension of significance and the heat of enthusiasm, is a cold, hollow, bitter, sterile, pathetic, and rather foolish thing.

V

The strangest of the Centennial articles to come to my attention appeared in the Editorial Department of the *Apollonian,* a dental magazine published in Boston. What makes it strange is that it comes from dentistry and Boston, and praises Long instead of Morton.

I have noticed a growing tendency among some dentists and

physicians to praise all claimants to the honor of discovering anesthesia equally. It is a benign idea that seems to stamp those who have it as peaceful, reasonable men who want to be good and kind to everybody—not argumentative old fools like this writer. But the idea does not work out very well in practice, for the simple reason that the amount of credit belonging to the various men is not in fact equal, and it is not, therefore, possible to equalize it without robbing one claimant to help another. And certainly that is not a nice thing to do. It is not possible, for example, to acclaim Long excessively except at the expense of Wells and Morton.

Believe it or not, I have no wish to disparage Long. The fact that he used ether at all indicates a courageous capacity for meeting the emergencies of his practice that wins my sincere admiration. But I cannot go on from there and honor him for having the vision and enthusiasm necessary to bring anesthesia to the race without stealing from Wells and Morton, the men who did have the necessary vision and enthusiasm.

I cannot respect Dr. Long for his lack of imagination. for his failure to grasp his great opportunity. I can only feel for him the feeling I have for an admired batter who strikes out—and on called strikes, without even taking a swing at the ball. Wells too struck out, in the sense that he failed to introduce anesthesia, but he at least swung at the ball, and his failure made Morton's success possible. He played ball. Dr. Long did not.

"In the hands of a country doctor," writes the editor of the *Apollonian*, "was fashioned the key that was to unlatch the door holding secure the mystery to the abolition of physical suffering, and to banish forever from the operating table the dark shadow of pain." Consideration of the discovery of anesthesia seems to make men write like that.

True, Dr. Long held the key. But he did not turn the lock with it. He did not even try to stick it into the keyhole. He just held the key and did nothing .

The unhappy thing about celebrating Long's anniversary is that it is impossible to remember what he did do without being reminded of what he did not do. Long advocates try to see only the pleasant part of the picture or to piece it out to completion with make-believe.

VI

The worst of the Centennial articles was written by Hugh H. Young, M. D., under the title "In Commemoration of the One Hundredth Anniversary of the First Application of Ether Anesthesia, Crawford W. Long: The Pioneer in Ether Anesthesia." It was published in the July, 1942, issue of the *Bulletin of the History of Medicine*. One reason for classifying this article worst is that, coming from such an eminent medical man as Dr. Young and appearing in such a dignified periodical as the official organ of the American Association of the History of Medicine, it should have been the best. Its origin and setting give it a class it does not otherwise possess.

A while ago I said that I was certain I detected in Dr. Clendening both a desire and a capacity to be fair and honest. I do not detect these qualities in Dr. Young's article. There are two kinds of historians (at least): those that follow history allowing the facts to lead them to their conclusions, and those that come to their conclusions and then attempt to lead history to their predetermined destination. Dr. Young is a competent and vigorous representative of the latter group.

The article is by no means without merit. The illustrations are numerous and excellent, and the author has gathered together a great deal of information about Dr. Long: some of it fresh enough to be called new, much of it especially revealing, and all of it interesting. But it is spoiled, for me at least, by the writer's virulent partisanism and ruthless determination to win victory for his cause.

The last paragraph of Dr. Young's article reads as follows: "No one can deny that the adoption of ether for surgical operations came from the wide publicity in Boston in 1846. Nevertheless, Long had fully realized the importance of his great discovery. Had he been less retiring and more self-seeking, the announcement of the anesthetic properties of ether probably would have been given to the world in 1842."

Thus Dr. Young boldly asserts that Dr. Long "fully realized the importance of his great discovery." Dr. Young undoubtedly means that Dr. Long fully realized the importance of his great discovery as soon as he made it, at the time he used ether on John Venable

on March 30, 1842. He does not mean that the realization came to him in 1846, when Morton introduced ether anesthesia.

Now the truth is of course that neither Dr. Young nor I nor anybody else can know for an absolute certainty just when Dr. Long fully realized the importance of ether anesthesia. All we can do is to come to a judgment based on the way Dr. Long acted. Dr. Long himself never said he fully realized the importance of ether anesthesia immediately upon his first use of it, and even if he had it would still be a justifiable procedure to examine his actions to see if they sustained the assertion.

How would a man act with the idea of anesthesia throbbing in his brain? Fortunately, we have three examples to refer to: Hickman, Wells and Morton. Let's see how they acted.

Hickman took his idea to the Royal Academy of London, wrote a booklet on the subject and published it at his own expense, made a trip to Paris to petition King Charles X of France to assist him in winning the attention and cooperation of the Medical and Surgical Schools of France.

After his first use of nitrous oxid, Wells tested it again a dozen or more times within about six weeks, decided it was all he had thought it was, and rushed off to Boston to tell the big city and the world of his discovery.

Morton gave ether to all who could be persuaded to take it and even paid people to submit to its administration, and, within a month, gave his famous demonstration before the staff of the Massachusetts General Hospital.

That then is the way three different men acted when the dream of producing anesthesia entered their minds. Now let's see how Dr. Long acted. We should of course make due allowance for the fact that different men may act differently. But we are fully justified in assuming that normal men will react in approximately the same manner. Hickman, Wells and Morton, for example, all acted in substantially the same way. Dr. Long, however, acted differently, so differently as to suggest that he was not subjected to the same stimulus. He administered ether fewer times in four years than Wells administered nitrous oxide in six weeks. He made no move to introduce his idea to a desperately suffering world. He *acted* as

though he had nothing to offer to the world. Could he have known that he had something so valuable and not tried to deliver the gift? I think not. It just would not be normal, and I think Dr. Long was a normal man.

It is my belief that the idea, the hope, the dream, the vision of anesthesia did not occur to Dr. Long. It is the only way I can explain his actions. Suppose he looked upon the use of ether for surgery simply as a novelty substitute for whiskey. If he did, he would have acted exactly as he did in fact act. During the four years, from 1842 to 1846 when Morton introduced ether anesthesia, Dr. Long probably used whiskey many times to prepare patients for surgery. It is fair to assume that he did, for practically all surgeons and dentists did at that time. During the same interval, Dr. Long used ether only four or five times. If he knew that he had something so much better than whiskey, that it constituted an entirely different and superior thing, he should have and, I think, would have used the better agent.

Like all those who attempt to explain why Long did not announce his discovery, after insisting that he comprehended its significance, Dr. Young offers a strange and unconvincing list of reasons or excuses. They are as follows:

1. Dr. Long was a "painstaking, modest scientist, quietly continuing his work" of investigation.

2. Dr. Long "bided his time, waiting for a major operation before publishing his claims to a discovery which he well realized would revolutionize surgery and startle the world."

3. "The reason he (Dr. Long) delayed publication of his discovery of ether anesthesia was because Dr. Louis A. Dugas of Augusta, Georgia, was vigorously championing mesmerism for surgery and had actually removed the breast of a woman without her being aroused."

4. "Had he (Dr. Long) been less retiring and more self-seeking, the announcement of the anesthetic properties of ether probably would have been given to the world in 1842."

It seems to me that it requires a great deal of self-hypnosis to accept these reasons (or excuses) as a satisfactory explanation for

failure to pursue and promote so exciting an idea as anesthesia. Let us see how well these reasons stand up under examination.

Dr. Long the "painstaking, modest scientist, quietly continued his work." Is resorting to the use of ether anesthesia on an average of about once a year for four years work? Is that hotly pursuing a great idea? It is right that scientific men should be slow and careful, but surely such extreme lack of action is overdoing it.

Dr. Long "bided his time, waiting for a major operation." Do you mean to tell me, Dr. Young, that Dr. Long sat around on his fanny for four years, with the idea of surgical anesthesia in his mind, waiting for a chance to test it in a major operation? If he did, the dog that sat howling on the cocklebur too indolent to get off was a picture of uncontrolled energy and initiative. And if he could not find a case of major surgery, why didn't Dr. Long test his discovery more often in minor operations. Why didn't he use it for tooth extraction? There, he could have used it again and again, for country doctors of that day had to extract teeth very frequently. He could have come close to proving or disproving his theory in this way. My own answer to the question is that the idea of anesthesia was not in his mind. Hence, it did not occur to him to test it. He simply substituted ether for whiskey occasionally to meet a particular emergency.

According to Dr. Young, the reason Dr. Long delayed publication of his discovery of ether anesthesia was because another man was championing mesmerism for surgery. What utter nonsense! What difference would it make to a man of character that another man had another method? What difference did it make to Hickman, Wells and Morton?

Again according to Dr. Young, "had he (Dr. Long) been less retiring and more self-seeking, the announcement of the anesthetic properties of ether probably would have been given to the world in 1842." Can't you see, Dr. Young, that there are other reasons besides selfish ones for announcing the discovery? The announcement of such a discovery is a profound obligation to the human race. The only reason, I feel certain, that Dr. Long did not fulfill this obligation is because he did not discover anesthesia in the sense that he comprehended its significance. He would not have failed to announce such a vitally important thing.

Frankly, I am becoming more than a little fed up with the way sentimental Long advocates harp on his modesty. I believe he was modest, but I do not think he was a freak in this respect. Let me show you that he was, shall we say, normal. In 1842, he could have had two good motives for announc.ng anesthesia: one, to deliver a gift to the race, the other, to win fame for himself. He did not make the announcement, because, say his advocates, he was too modest. (Because, say I, he did not realize he had anything of importance to announce.) In 1849 he no longer had anything to give the race. Another man had delivered the gift. He then had only one motive: the desire to satisfy his own vanity and the vanity of his relatives and friends. It was then, in 1849, that he made his announcement. I certainly do not condemn Dr. Long for this normal vanity. My ammunition is directed at Long advocates, not Dr. Long. He had the good sense and the good taste not to push his case to the point of making it ridiculous. I am convinced that he knew he did not have a good case, for that is the way he acted.

Dr. Long appears to have made it a rule, whenever taking action to press his case, always to explain that he did so at the urging of friends. Like a parlor musician, he had to be coaxed. That he did, in fact, have to be coaxed, I have no doubt. It is easy to understand. No one knew the extent and bitterness of his failure to make the most of his great opportunity as well as Dr. Long himself. He probably spoke to his friends of his failure. Whereupon they no doubt assured him that he had made no failure and that he was too modest. Dr. Long's good sense and honesty held up remarkably well under these benignly vicious onslaughts. That he cracked occasionally and that the cracks occurred more frequently as time went on is not surprising. For what little weakness he showed he can easily be forgiven. He occupied an embarrassing position with admirable dignity and integrity. It is not so easy to forgive his advocates who continue to remind us of his failure by their foolish, illogical efforts to deny it.

In two instances Dr. Young disagrees with his friend, Mrs. Francis Long Taylor, Dr. Long's daughter. Mrs. Taylor does not go far enough in her claims to suit Dr. Young. He accepts as valid the recently announced story that Dr. Long gave his wife ether for child-

birth in 1845. On page 82 of her book about her father, Mrs. Taylor says that Dr. Long gave ether to his wife for childbirth in 1847, the same year Simpson first used chloroform for the purpose, and a year after Morton introduced anesthesia. In 1941, eleven years after Mrs. Taylor's death, her sister Eugenia told Dr. Frank Boland that the date was 1845 and that the child was Mrs. Taylor herself. No doubt Long advocates will find their way out of this dilemma by declaring that Dr. Long gave ether to his wife for childbirth twice. It seems the only way to make good historians of both sisters.

In his description of Dr. Long's death, on June 16, 1878, Dr. Young tells us that he had just finished giving ether to a woman for childbirth. So, says Dr. Young, "he died in harness, and his last act was to apply his great discovery to relieve the pains of childbirth." That is good drama, Dr. Young, but by 1878, anesthesia was no longer "his discovery." It did not belong to Dr. Long any more. It belonged to the world. The combined efforts of two other men—Wells and Morton—had given it to all mankind. To paraphrase a very famous remark: Now it belonged to the ages. Dr. Long lost his discovery by not giving it away. There is good drama and much pathos in that, too. Anyhow, Mrs. Taylor states definitely, on page 82 of her book, that ether was *not* given to the patient. It was only "suggested," not administered.

VII

This article was prepared for publication at the request of Dr. W. Harry Archer, Chairman of the History Committee of the American Dental Association. I have waited nearly a year, since Dr. Archer's request first reached me, hoping that somebody else might be found to do this thankless job; but no one seems willing, and dentistry must not continue to let the Long celebrations go unchallenged. To do so is to appear to give tacit approval of all that went on.

It is not only our right, but our obligation to protect Wells and Morton against those who would take away the honor they earned for themselves and their profession. Credit, like freedom, seems to be one of those things that can be preserved only by those who are willing to fight for it.

ANNOUNCEMENTS

AMERICAN ASSOCIATION OF THE HISTORY OF MEDICINE

The Association has again suffered a serious loss. News has been received that our honorary member *Dr. Arnold C. Klebs* died in Nyon, Switzerland, on March 6, 1943. On March 17 he would have been 73 years of age. Three years ago a number of this Bulletin (Vol. VIII, pp. 319-532) was dedicated to him in which friends from various countries paid him tribute on the occasion of his 70th birthday. Klebs suffered from a heart disease after his wife had already been taken ill, and they both felt very isolated in Switzerland where the war kept them separated from their children. We may be grateful that Klebs was able to complete and publish in 1938 his *Incunabula Scientifica et Medica*, the result of many years of labor. Whoever works with incunabula of medicine and science refers to Klebs as he referred to Hain. Dr. Klebs' remarkable collection of books will cross the ocean as soon as conditions permit and together with Harvey Cushing's collection will make the Historical Library of the Yale School of Medicine a great center of Renaissance studies.

CONSTITUENT SOCIETIES

The Beaumont Medical Club, New Haven, Conn.

The sixty-seventh regular meeting of The Beaumont Medical Club was held in The Beaumont Room, Yale Medical Library, on March 19th, 1943. The following program was presented:

1. "Plans for the Medical History of the War" by Dr. John F. Fulton.
2. "Ancient Eastern and Biblical Medicine" by Prof. A. S. Yahuda.
3. Business of the Annual Meeting.

Before the meeting the members were shown the recent acquisitions of The Beaumont Medical Club from the collections of its recently deceased member, Dr. Walter R. Steiner.

NATIONAL NEWS

SS. William Osler

On March 6, 1943 the Bethlehem-Fairfield shipyard in Baltimore launched its one hundred and first Liberty ship, built in twenty-eight days, and named it after Sir William Osler. Miss Beryl Scott Hobson, member of the WRNS, Women's Royal Naval Service, was its sponsor.

University of Kansas

On March 3, 1943 Col. Edgar Erskine Hume delivered the Annual William Root Lecture at the Medical Department of the University of Kansas Hospital, under the auspices of the Alpha of Kansas Chapter of Alpha Omega Alpha. Col. Hume spoke on "Typhus Fever and Other Epidemic Diseases Affecting the Outcome of War."

HOWARD B. ADELMANN, editor and translator. *The Embryological Treatises of Hieronymus Fabricius of Aquapendente.* The Formation of the Egg and of the Chick [*De Formatione Ovi et Pulli*]. The Formed Fetus [*De Formato Foetu*]. A Facsimile edition, with an Introduction, a Translation, and a Commentary. Ithaca, New York: Cornell University Press, 1942. xxiii + 883 pp., plates. $12.00.

Professor Howard B. Adelmann represents a splendid type of scientist and scholar. He is a Cornellian if there ever was one. Born in Buffalo, he came to Cornell in 1916 and with short interruptions, notably a year in Europe in 1927 when he worked at the University of Freiburg, he has resided on the lovely hills of Ithaca ever since. A bachelor, master, and doctor of Cornell he entered the field of histology and embryology in his undergraduate years, and climbed the academic steps until he became a professor in 1937. He is a busy and much appreciated teacher, has made important contributions to histology and particularly to embryology, and he is a humanist who sees science from the broad perspective of history. He spends every cent he can spare on books and today possesses by far the finest collection of books on the history of embryology. But he also collects records of Mozart whom he worships, and it is a rare pleasure to spend an evening in Adelmann's study surrounded by books, pondering over an old tome while the room is filled with the glorious melodies of the quintet in G Minor or Cherubino sings: *Non so più cosa son' cosa faccio.*

It is very heartening to know that in these troublesome days there are men like Adelmann fanatically devoted to their work, to the values that will never perish, carrying on the torch of learning in spite of all and everything.

Dr. Adelmann is so modest that only those who were close to him knew that for a number of years he had been engaged in a great piece of research on Fabricius of Aquapendente and his embryological treatises. His friends knew, and I may say all medical librarians did because Dr. Adelmann had canvassed the libraries of this and of foreign countries in order to elucidate the riddle presented by the treatise *De formato foetu.* If ever a publisher made mischief and created perplexities for bibliographers, it certainly was the Venetian Francesco Bolzetta. According to the colophon the book was printed in Padua by Laurentius Pasquatus in 1604. Fabricius' dedication is dated 1606. The title page of most copies bears the date 1600, and in various bibliographies the date of publication is given as 1600, 1603, 1604, 1606 and even 1620. Yet all editions are actually the same. I fully agree with Adelmann that the most reliable date is that of the colophon, 1604. The date of the dedication may well be an error, the VI standing for a IV. And as to the very ornate title page we know that the publisher made it from the same plate that he used for *De visione, voce, auditu* of 1600 whereby he

simply deleted the original title and added the new one, but in some copies the original date 1600 remained. At any rate we now possess the two embryological treatises of Fabricius, *De formatione ovi et pulli* and *De formato foetu* in a splendid facsimile edition.

Fabricius' Latin is by no means easy to read, and Dr. Adelmann's translation is therefore highly welcome. Such a text can be translated literally whereby the translation sometimes remains as dark as the text; or it may be translated freely and in that case we are never sure whether we are dealing with the author's or with the translator's interpretation. Dr. Adelmann has found a happy medium. He followed the original text as closely as was compatible with clarity. He did not break up long Latin sentences without necessity, yet succeeded in giving a translation that reads very fluently. One feels that he has pondered over every sentence, that he has completely assimilated the Latin text, and that his version is the result of much thought and of years of labor. I also appreciate the translator's honesty in that he never attempted to evade difficulties. It is so easy to give an approximate translation of a difficult passage, speculating that nobody will notice it anyway. Dr. Adelmann has never taken such short-cuts but has faced the difficulties and if necessary has discussed them in notes. These notes that fill 134 pages are not the least important part of the book. They provide the materials for an evaluation of Fabricius' sources and of his influence, particularly on Harvey.

And finally Dr. Adelmann has given us a historical introduction that locates Fabricius and his embryology in time and space. It includes a biography, a sketch of embryology before Fabricius, an analysis of the two treatises and a bibliographical note. It is much to Dr. Adelmann's credit that he did not attempt to glorify Fabricius. He gives a detached picture of him as of a man in whom the conflict between observation and authority was fully alive, an Aristotelian who never freed himself from traditional bonds, yet observed conditions that nobody had seen before and depicted them in excellent illustrations, thus paving the way into the future. With its bibliography and its detailed index of 71 pages, the book is a model of its kind, a solid piece of historical research.

Special mention should be made of the publisher, the Cornell University Press, that has done a beautiful job on this book. The typography is dignified and very attractive, the paper is good and so are the illustrations. Whoever uses the book will appreciate the attention that has been paid to details such as the running heads of the Notes and Commentary that permit one to find a reference without effort.

Summing up, it is a great book written by a fine scholar and lovable man, beautifully produced by a publisher who put his heart into it. And today when everyone thinks in military terms I would like to stress that the publication of such a book at such a time represents a victory also, equally important to the capture of a strategic hill, and more durable. One can have full confidence in the future of a nation which in the midst of a bloody war

possesses the intellectual and technical resources to produce such a document of scholarship.

HENRY E. SIGERIST

BERNARD ASCHNER. *The Art of the Healer.* Translated from the German by RUTH and HEINZ NORDEN. New York: The Dial Press, 1942. 306 pp. $2.75.

It is unfortunate that Dr. Aschner is being introduced to the American public with a popular book. Dr. Aschner had an interesting career during the course of which he developed his own system of medicine, a rather unusual feat. A Viennese by birth he graduated from the University of Vienna at the time when its medical school was in full bloom. For a number of years he held various hospital appointments in surgery and gynecology, and later was Privatdozent on the faculty of that great university. During those years, like many other young doctors of that generation, he engaged in experimental research and made some important contributions. The oculo-vascular reflex is named after him, and by removing the pituitary gland in the dog he was able to demonstrate the great part this organ plays in various physiological functions.

Dr. Aschner soon had a flourishing practice in Vienna, and the more patients he saw the more dissatisfied he became with the traditional methods of therapy. He realized how helpless medicine still is, particularly in the treatment of chronic disease, in spite of great scientific progress. He was a physician whose only aim was to succor the patient by any means available. And since academic medicine had no answer for many problems, he looked around and tried to find out what treatments physicians had applied in the past.

Vienna, one of Europe's great cultural centers, was also a center of studies in the history of medicine. Theodor Puschmann was professor of medical history from 1879 to 1899. He was succeeded by Max Neuburger, one of the most brilliant medical historians of our time. Lectures were also given at the University by Robert von Töply and Isidore Fischer who recently died in England. In Vienna, medical history was not a hobby nor an esoteric subject, but was very much alive. A Viennese physician and poet, Arthur Schnitzler, put Paracelsus on the stage, and the psycho-analytical school was very interested in historical studies. Aschner delved into medical history, read and studied the works of the great physicians of the past not as a philologist, not as a historian, but as a humble student who was eager to learn from them, in the same spirit in which they had been approached until the middle of the 19th century.

Venesection and cauterization were applied for thousands of years. The doctors of old were not fools. Men like Paracelsus, Ambroise Paré, Sydenham, Boerhaave, Hoffmann and many others knew what they were talking about. They would not have used treatments that were totally ineffective or harmful to the patients. Certain drugs and combinations of drugs would not have

been prescribed for hundreds and thousands of years if they had not had any action on the diseased organism. Experience had preceded science. A great clinician like Laennec openly declared that in his therapy he was following traditional lines and was basing his work on experience alone.

Aschner had the courage and sometimes the nerve to apply these old classical treatments to his patients. He performed venesections, applied cupping-glasses and leeches, prescribed weird remedies—and in many cases had excellent results.

It was difficult to explain Aschner's observations in concepts of modern medicine. Yet he was convinced of the efficacy of his treatments. Being a scientist, he endeavored to evolve a theory that would satisfy our need for causality. Most of these ancient treatments were either purely empirical, or conceived on the basis of a humoral, or at any rate not of an organic theory. Even when applied locally they were meant to act on the organism as a whole. Aschner therefore called his method *Constitutional Therapy* and from 1924 on he wrote a number of books on the subject, the most important of which was his *Handbuch der Konstitutionstherapie* which had seven editions in six years.

A popular book like the present one may be good reading for the layman but is very unsatisfactory to the physician, because it discusses a highly controversial subject merely in general terms. The cures referred to sound like miracle cures and are therefore not convincing. Aschner's views obviously were received with great skepticism because we do not like to accept facts that do not easily fit into our current theories. This is a very unscientific attitude. Helpless as we are in the treatment of many chronic diseases, we should be eager to investigate any treatment, strange as it may seem, that promises results. And if it could be demonstrated convincingly that such a treatment is effective, we should be ready to broaden our theories. If Aschner would publish a sufficiently large number of accurate detailed clinical case histories of arthritic patients on whom all laboratory tests had been performed, and if he could demonstrate that his treatments had good results, not in all but in many cases while the customary methods failed, this would be more convincing than dozens of general books. A man like Aschner should not be in private practice but in a large hospital equipped with excellent laboratory facilities, because I am sure that his basic idea is sound and that a critical scrutiny of the historical literature of medicine may be very stimulating.

Aschner works a great deal by means of intuition. This is alright for those who have it and for whom it does not fail, but Aschner himself realizes that such an attitude if it is not checked by scientific accuracy may lead to "irresponsible mysticism and romanticism." As a matter of fact, it has already led into these very pitfalls. There was in Germany and Italy before the war a "neo-hippocratic movement." It attracted mystics and romanticists, homeopaths, psychoanalysts and crackpots. An international congress of neo-hippocratic medicine was held in Paris in 1938. Its chairman was

Laignel-Lavastine, a Catholic mystic with fascist tendencies, and one of the vice-presidents was a well-known man, our own Alexis Carrel who in 1935 had already formulated his fascist credo in a widely read book that did immeasurable harm in confusing the people's minds. If fascism is defeated, neo-hippocratism will go with it.

We do not need sects. We need a strong, rational, scientific system of medicine, broad enough to incorporate and assimilate whatever positive contributions sects may have made. Through accurate scientific research, which must include psychological and sociological factors, we continuously endeavor to reduce that element of medicine that we are not yet able to formulate in scientific terms. We want a system of medicine that can be taught and can be learned, by students who are endowed not with intuition but with average intelligence, so that whatever scientific knowledge we have may be applied to the people on a mass scale.

The fact that I have written so much shows that Dr. Aschner's book is stimulating and challenging.

HENRY E. SIGERIST

[Sœur Mondoux] *L'Hôtel-Dieu, premier hôpital de Montréal, 1642-1763.* Montreal: Imp. Thérien frères, 1942. 417 pp., illustrations and plates. $2.50.

In 1630, 1631 and 1634, God in his own voice ordered Jérôme le Royer de la Dauversière (1571-1659), a petty nobleman and royal tax collector at La Flèche (Département de la Sarthe, France), to found a congregation of the "Filles hospitalières de St. Joseph" at La Flèche, to build a hospital at the site of the later city of Montreal (Canada) where these nuns might work, and in order to give security to the hospital to colonize the island of Montreal. La Dauversière was well informed concerning Canada by Jesuit friends. He was undoubtedly very able in finding the right people to finance and to execute his visions. In 1639 the congregation was founded at La Flèche, and spread in France, but sent altogether not more than 8 nuns to Montreal. In 1642 an honest and pious soldier, Paul de Chomedy de Maisonneuve, and a devout and resourceful lady, Jeanne Mance, arrived at the island with some colonists, the one to found Ville Marie (later Montreal), the other to found l'Hôtel-Dieu which was opened in 1645 and is thus the second hospital founded in North America (the first is the Hôtel-Dieu at Quebec in 1639). In 1659 the first three nuns arrived. What now follows is a heroic and admirable battle against the elements, cold, fire, earthquakes, lack of funds, the Indians, epidemics and intrigues of other congregations, a battle already ably and respectfully recorded in the works of Heagerty, Howell, Birkett, Maude Abbott, etc., who as heretics and non-French of course do not figure in the bibliography of Sister Mondoux.

Great works of scholarship have come out of cloisters. This certainly is not one of them, although it looks at first glance like a scientific book. Even

the problems it mostly deals with, the character of the main actors of the tragedy, financial transactions and church intrigues, are treated in such a "delicate" way that nothing can be learned from the book. It is pervaded by a sickening "odeur de sainteté" (preferred term of Sister Mondoux) and the equally lovable odor of the French "étude de notaire."

It is significant that in the history of a hospital, illnesses, treatment, etc. are hardly mentioned. These things seem to have been very secondary, at least in the spirit of the author, to the salvation of the souls of the patients and nuns. Particularly revolting are the reports of attempts to convert dying Huguenots and Indians (p. 199, 201). The sanitary and medical conditions in the hospital during the period described seem to have been terrible.

E. H. ACKERKNECHT

MURIEL RUCKEYSER. *Willard Gibbs*. Garden City, N. Y.: Doubleday, Doran & Co., 1942. 465 pp., illustrated. $3.50.

Josiah Willard Gibbs (1839-1903) has only in recent years been accorded some measure of the recognition to which his fundamental work in mathematical physics entitles him. As evidence of growing recognition it is now gratifying to have this full length biography of the man whose theoretical formulations have for many years served as a point of departure for workers in fields so disparate as biochemistry and economics, statistical mechanics and industrial chemistry. For Gibbs was concerned chiefly with formulating the postulates and forging the mathematical tools with which all sorts of problems involving the interactions of substances could be solved with the completest generality and simplicity.

Miss Ruckeyser does not go deeply into the technical details of Gibbs's work, for the papers have proved exceedingly difficult even for highly trained specialists. Instead, she properly confines herself, on the scientific side, to a very general exposition and quotes extensively from many published works and private communications of workers in many fields who are proud to proclaim their great debt to Gibbs.

By far the greater part of her work, however, is an inquiry into the personality of the man, the consequences of the delayed recognition of his work, and the historical background not merely of the period of Gibbs's life but of the decades that preceded and those that followed his life, up to the present. Here we have a series of luminous if fleeting pictures of persons who in one way or another suggest themselves to the author when she is concerned with some particular phase of Gibbs's life—persons so widely diverse as John Quincy Adams, James Gates Percival, William James, Herman Melville, Walt Whitman, and Henry Adams. By this series of portraits the author, as poet rather than as historian, gives us something of the cultural, social, and political atmosphere surrounding her theme. Throughout the book Yale supplies the background for a discussion of per-

sonalities and trends in American academic history, for it was at Yale that Gibbs the scientist and his father the philologist both worked.

That the book is a series of pictures not always in close relation to the main theme is both its strength and its weakness. It is, to be sure, by this type of treatment that the author is best able to employ her poetic gifts to match the high enthusiasm which she brings to her task. At the same time, as she herself is frank to say, the work is in many ways incomplete and tentative.

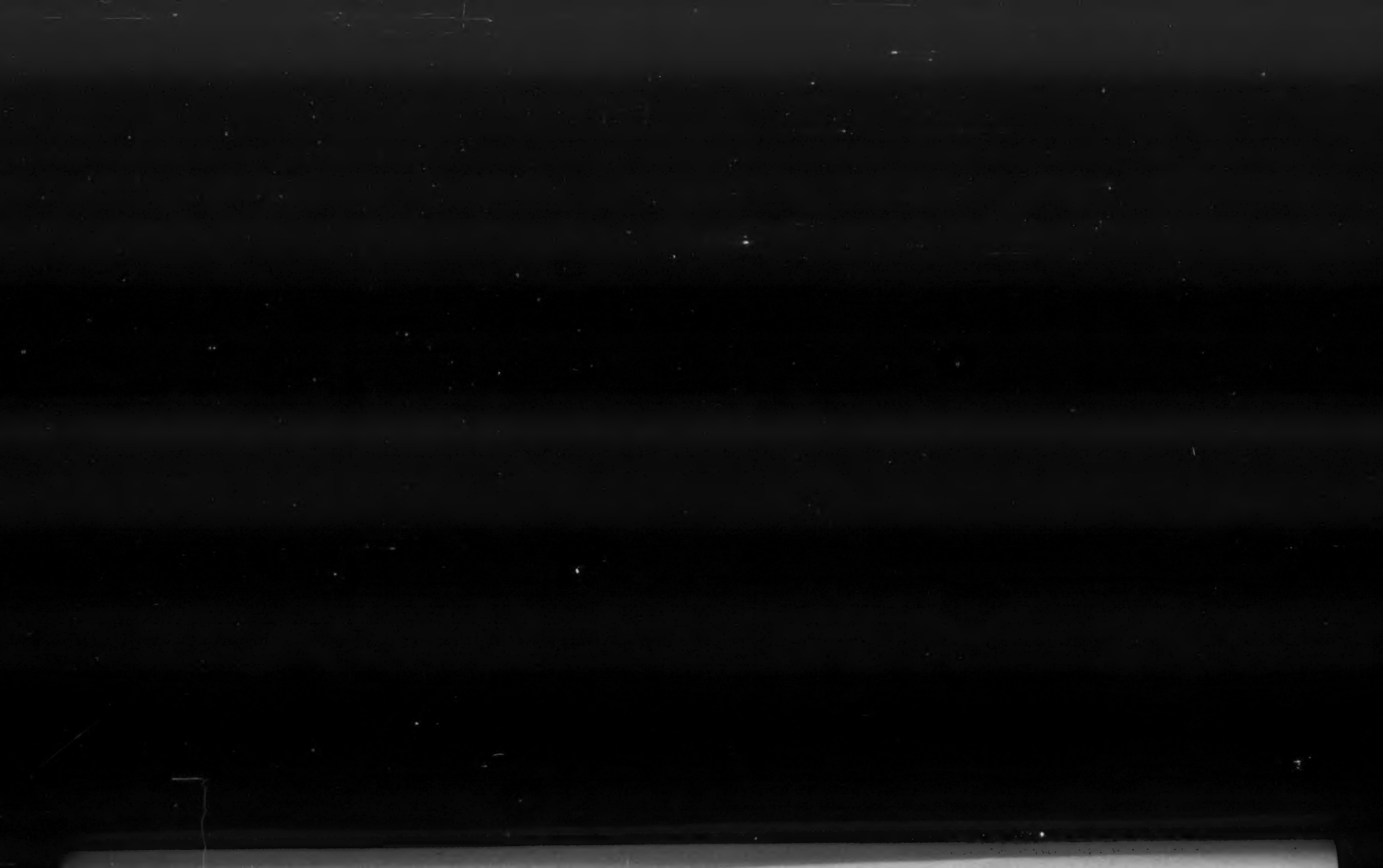
Her achievement, however, is no small one, for she has succeeded in throwing much light upon an elusive genius, and in making known, perhaps for the first time to large numbers of readers, the name of Willard Gibbs.

I. E. DRABKIN

GEORGE WONSON VANDEGRIFT. *Castor Oil and Quinine*. New York: E. P. Dutton & Co., 1942. 252 pp. $3.00.

Castor Oil and Quinine is the biography of Dr. George Vandegrift, written by his son. The elder Vandegrift practised medicine in the Corlears Hook section of the lower East Side of New York from 1879 until about 1910, and the anecdotes about him collected here throw some light on medical practice at the time. There is little attempt to be critical; the author writes entirely in the spirit of his statement on the flyleaf: "Every character in this book is real. If there is any similarity to fiction it is purely coincidental."

Reference is made to the frequent use of intubation, tracheotomy, and venesection, the importance of the druggist, the very personal relation between the doctor and the patient, the medical habits and superstitions of the immigrants which had to be combated, and the like, but all these are mentioned chiefly to help present the picture of this extraordinary doctor. Yet a number of Dr. Vandegrift's customs which are attributed to his vigorous personality and to the Irish and German immigrants of Corlears Hook among whom he practised, belong perhaps rather to the medical practice of the period than to the individual. For example, William Wickham Welch (the father of William Henry Welch), a country doctor in a New England town, conducted his practice with many very similar "eccentricities." (Cf. Simon Flexner and James Thomas Flexner, *William Henry Welch and the Heroic Age of American Medicine*, New York, 1941, pp. 29-35.)

The book is hardly a contribution to medical history or sociology in this country; the reference to life and medical practice in New York, and on the Eastern Shore of Maryland where Dr. Vandegrift spent the last years of his life, are too vague and desultory to be of value. Obviously the writing of the book gave much pleasure to the doctor's son who loves to reminisce about his father, and the doctor's patients may enjoy reading it, for it is a delightful biography, which is undoubtedly all that the author intended it to be. But its importance ends there.

MIRIAM DRABKIN